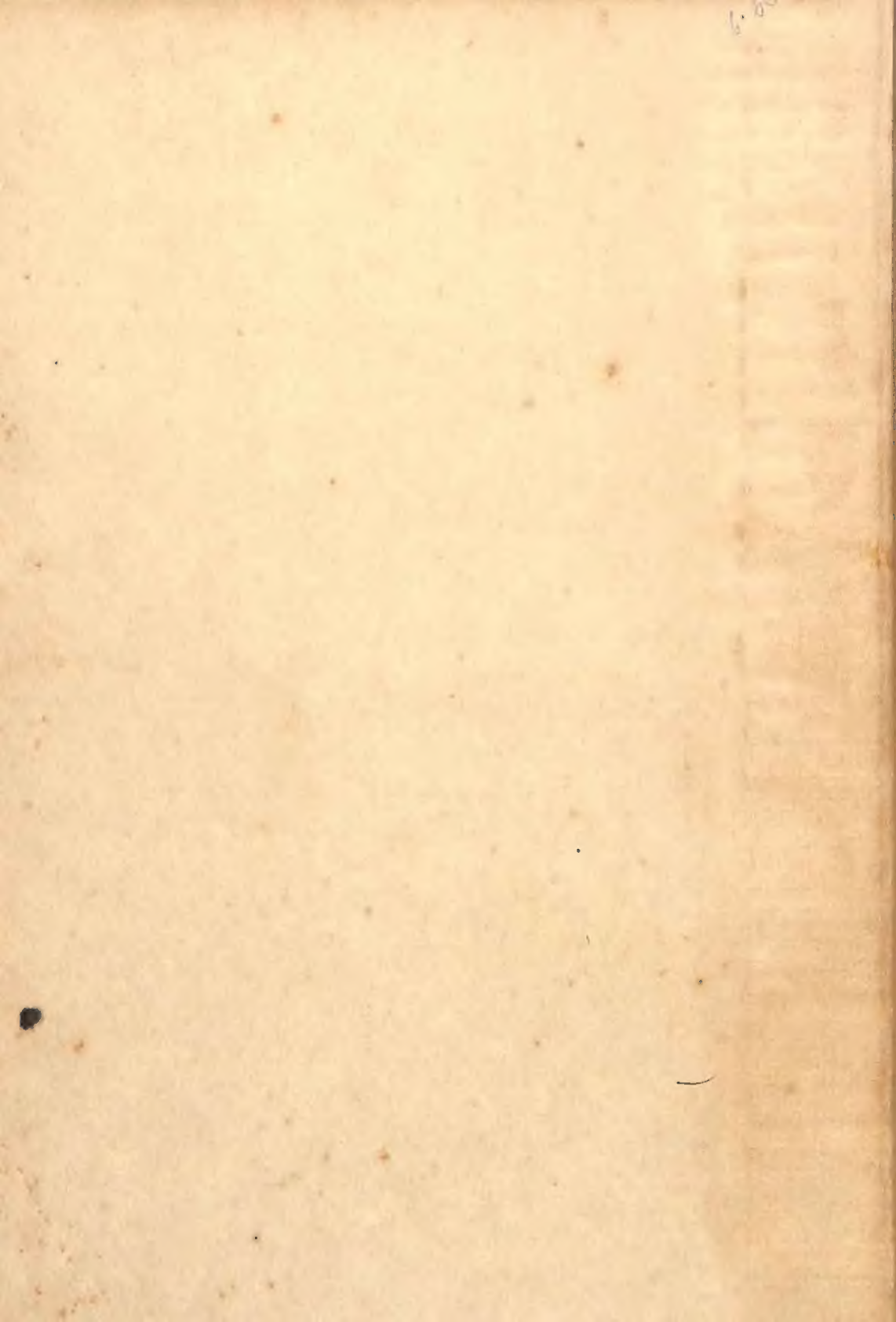


Problems in
**HEALTH, PHYSICAL
and RECREATION**
Education

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PROGRESS IN HEALTH PHYSICS
AND RADIATION EDUCATION

**PROBLEMS IN HEALTH, PHYSICAL
AND RECREATION EDUCATION**

Problems in HEALTH, PHYSICAL

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Education

PROCEDURES FOR THE
SYSTEMATIC IDENTIFICATION
AND SOLUTION OF PROBLEMS



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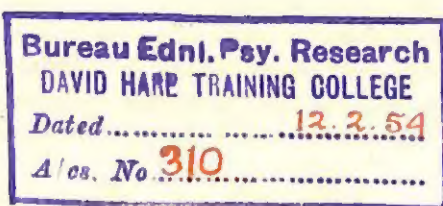
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Preface

Modern philosophy of education is concerned with ways and means of preparing the individual to solve the multitudinous problems posed by modern society. The full scope of this responsibility includes consideration of social conditions; political issues; war and peace; technological developments; educational needs in the state, nation, and world; social and religious issues; vocational skills and opportunities; and other problems that confront man in a complex world.

Education today views the preparation of the individual in society for problem solving as consisting of an understanding of the basic sciences, literature, art, music, languages, and professional education services; and also the development of skills and understanding in the various special fields of education.

The study of problem-solving techniques should be undertaken early in the individual's professional preparation. The individual with a thorough preparation in the foundational, cultural, and professional sciences begins to use this knowledge and understanding as a citizen and as an educator. He becomes concerned about the welfare of the people; about problems relating to such matters as health, leisure time, poverty, delinquency, crime and ignorance. Such concern is the ultimate level of motivation for education.

This basic philosophy underlies the writing of this book. It is the first of its kind in the professional fields of health, physical, and recreation education. The need for the book has been demonstrated by the many instances in which health, physical, and recreation education become ends, rather than the means or tools, for the more basic needs of the individual and society.

The problem-identification approach in this book is made according to design and with a purpose. It has been the experience of the authors that professional educators seldom know the problems, as well as their nature and scope, which confront them. Systematic design should aid the educator in problem identification within a framework of conditions that surround the individual in society.

It is necessary not only to gain knowledge and understanding on how

to identify problems reliably and validly, but also to understand the procedures of problem solution. The methodology for problem solving is presented with emphasis on resources for locating educational literature, patterns or methods for problem solving, techniques used to gather reliable and valid data, and tools for the analysis of results. The methodology also includes an explanation of how the results of problem solution may be presented as a report.

In health, physical, and recreation education, the setting for problem identification and solution finds its place within the total framework of education and its social and individual responsibilities. Activities and experiences resulting from the use of this book will aid the educator not only in achieving closer relationship among the areas of health, physical, and recreation education, but also in broadening the understanding of these fields in their application to the total realm of educational practice.

The authors acknowledge the numerous comments and criticisms offered by colleagues and students. The assistance of Professor Nelson W. McCombs of the New York University Library in suggesting the location of much of the educational material presented in Chapter 7 has been invaluable. Appreciation is extended to the H. W. Wilson Company of New York for permission to use illustrations of index materials described in Chapter 7, and to David M. Black for the use of some materials in his master's thesis, "A Guide to Research Sources in Physical Education, Health, and Recreation at New York University (1947)," for part of the framework presented in Chapter 7.

L. A. L.

M. R. F.

M. A. G.

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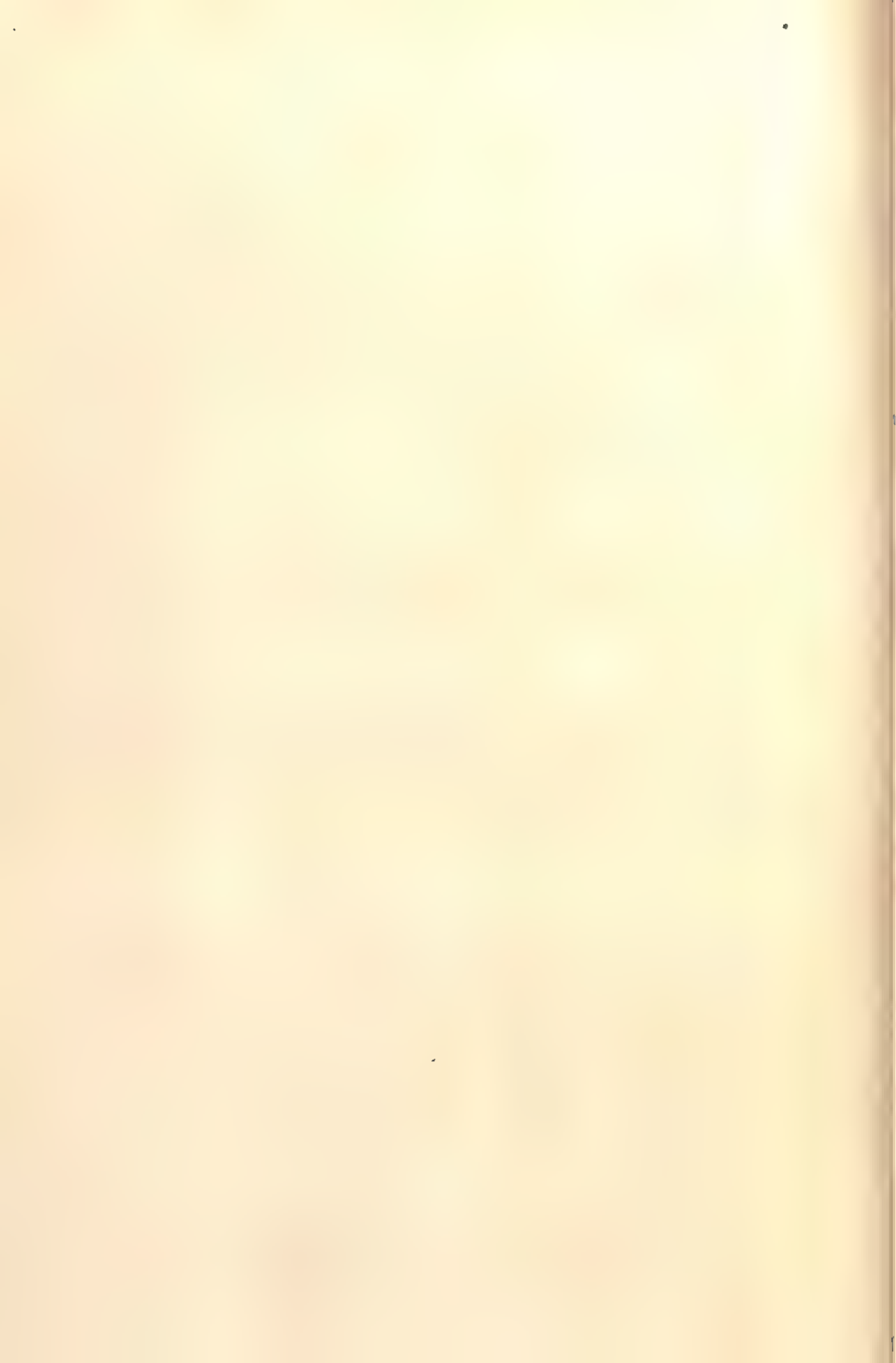
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PROBLEMS IN HEALTH, PHYSICAL AND RECREATION EDUCATION



Introduction

This introduction provides an outline of suggested procedures for the organization and administration of the problems course requirement in professional preparation. Although it is hoped that the outline will have direct practical application, readers should remember that the approach is not inflexible, and changes or modifications may occur in the utilization of procedures suggested here.

PURPOSES

The purposes of the problems course and the work of problem analysis are twofold: (1) to make a systematic analysis of problems encountered in the conduct of professional activities of health, physical, and recreation education, and (2) to select a problem that is a concern of the professional areas and to suggest a solution.

Learning and accomplishment result from activities in the problems course. Growth in the problem-solving technique, in the use of the scientific method, and in the application of the democratic process occurs. Students may share in planning, conduct, and evaluation of the course. Group learning situations emphasize the effect of united effort as contrasted with that of the individual. Group participation provides the opportunity for discovering and developing leadership and individual responsibility.

In a democracy, group or committee experience in problem solving is desirable. Learning to resolve differences effectively and intelligently, to sift facts, and to find satisfactory solutions to common problems are activities that take place in the group. As members of the group participate in discussions, certain values accrue. The individual gains knowledge through sharing ideas and information; he improves his ability to do critical thinking; he becomes more tolerant of others' views; he enhances his power to express himself adequately before others; and he becomes a participating, contributing member.

COMMITTEE ORGANIZATION

The problems course can gain the greatest value when it is organized on the committee or group basis. Since there are nine professional activity

areas for consideration, one committee should take the responsibility for each area: Interpretations; Objectives; Community Organization and Auspices; People—Status, Educability, and Capacity; Programs; Leadership; Administration; History and Trends; and Professions.

Organization of the committees can be accomplished through various procedures. The number of students in the class divided by nine (the number of committees) will suggest the size of each committee. Whenever possible, the students' assignment to committees should be on the basis of interest. If this is not feasible, the following methods may apply: arbitrary allocation of class members on the basis of alphabetic arrangement of students' last names, each committee being completed in turn; random assignment of class members to committees by designating every second, or third, or fourth student on the class roster to a named committee. Another procedure is to appoint one student as a temporary chairman for each of the nine committees and then permit the chairman to select fellow members in turn. This process of selection is similar to choosing sides in making up teams for a game.

Other procedures range from students volunteering for committees to the chance assignment of the student to the committee that is named on a folded slip of paper drawn by lot. The instructor undoubtedly will employ those techniques which are most expedient and which will be in the students' best interests. One method proven to be effective is to describe the functions of each committee and then have the students select by name and in order of preference four committees on which they would have no objection serving. As far as possible, students are placed on the committees of their first choice. If this is not possible because of the desirability of equalizing the number of students on each committee, then the second, third, or fourth selection is utilized.

The Chairman

Members of the committee should have an opportunity to become acquainted with each other to discover abilities within the group before a selection of a permanent chairman is made. Two ways of accomplishing this are by appointing a temporary chairman, and by rotating the chairmanship. The permanent leader must be one who will accept responsibility, encourage individual initiative, and accept group opinion rather than insist upon his own. He should be able to simplify, interpret, and relate material in the discussions. Integration of material in reports and discussions in relation to the problem is also his responsibility. Above all, the chairman must be able to conduct committee meetings and discussions democratically, make each member feel that his contribution is important, and bring differences of opinion into the open for evaluative purposes. The chairman schedules committee meetings, allocates work responsibili-

ties selected by committee members, leads the oral presentations of his group, and in general maintains the integrity of the committee.

COMMITTEE OPERATION

Committee operation will be governed somewhat by time and facilities, but certain principles will apply. An understanding of the procedures in committee work should be developed and those procedures accepted by all committees. Members should agree upon the objectives, and flexibility should be maintained in order that objectives may be adjusted when necessary. Members should cooperate by accepting assignments, preparing thoroughly, and presenting reports on time. Reports and discussions should be concise, concrete, and related to the problem. Understandable language should always be used, and words and manner that might lead to antagonism avoided. A "dress rehearsal" before the committee report is given to the class is desirable.

The Instructor

It is the instructor's responsibility to see that members of the group understand the purposes of committee work and learn the procedures of democratic operation. Members must be oriented to the problem and to each other. Periodic conferences between chairman and instructor and the latter's presence at some committee meetings will facilitate progress and accomplishment. Instructors should permit those individuals who find it impossible to work with a specific group to exchange places with members of other committees. Addition or reassigning of members, to establish a balance in the committees involved, is worthwhile. Finally, the instructor should see that necessary and adequate source materials are provided for the students in the course.

REQUIREMENTS

The problems course is concerned with two projects: (1) problem identification and analysis by the committee, and (2) problem identification and analysis by the individual students.

The Committee Project

Committee activity is primarily concerned with the identification of problems, not the utilization of the group process in problem solving. Problem solution is the responsibility of individual committee members and is exemplified by requirements in Part E described in this section. It is also demonstrated through the development of the individual project.

If the problems course is scheduled for two semesters, the following procedure may apply (see pages 7, 8 for Time Schedule of Presentation):

First semester. Completion of committee reports for Parts A, B, C; completion of outline for the individual project.

Second semester. Completion of committee report for Part D; completion of individual reports for Part E (presented as a committee); completion of the individual project.

If it is not expedient to utilize two semesters, the time schedule can be condensed into a one semester experience. In this situation, the individual project requirement can be deleted and emphasis placed on individual work in Part E.

In order to carry out its responsibility in problem identification and analysis, each committee follows five steps. Part A (see Chapter 3) concerns the establishment of the area functions and the job that needs to be performed for effective professional practice. Part B (see Chapter 4) entails the establishment of the operational principles for the selected functions. These are the desirable principles for action against which the practices can be measured. Part C (see Chapter 5) involves statement of the current practices with respect to the specific functions necessary for effective professional practice. Part D (see Chapter 6) relates to the identification of problems in the specialized fields needing research. Part E refers to solutions for the identified problems. It concerns available evidence that suggests desirable professional practice for the selected problem. Each committee member proposes a solution for one problem by using evidence available from professional literature. This solution is presented and defended by the committee member concerned.

A time schedule (see pages 7, 8) is arranged so that committees can furnish each student and instructor in the course with a mimeographed tentative draft of Parts A through E at least one week before committees are scheduled to defend the respective report orally before the entire class. This gives the students and instructors an opportunity to read carefully the preliminary report and make written comments. After the defense of the report, the committee is charged with the responsibility of submitting final revisions for Parts A through E. One exception is made in Part E. Here the individual committee member takes the prerogative of revising his report.

Illustration of Committee Final Report

The professional area selected for this illustration is *People—Status, Educability, and Capacity*. Procedures herein shown are applicable to other professional areas.

Presentation Outline

I. Part A: Statements of Functions. (The specific working functions of the area, i.e., the job that needs to be performed for effective professional practice.) (See Chapter 3 for additional format of report.)

- A. Basic influences
 - 1. Philosophy
 - 2. Age
 - 3. Sex
 - 4. Environment
 - a. Animate
 - b. Inanimate
 - 5. Medical
 - 6. Legal
 - 7. Research
 - 8. Other basic influences
- B. Characteristics of people
 - 1. Physical
 - a. Body build
 - b. Nutritional status
 - c. Other physical characteristics
 - 2. Mental
 - a. Intelligence
 - b. Aptitudes
 - c. Other mental characteristics
- C. Other functions

II. Part B: Statements of Operational Principles. (Outline statements of operational principles for the selected functions. These are the desirable guides for the determination of policies and procedures concerned with the functions of the special areas.) (See Chapter 4 for additional format of report.)

A. A measurement and evaluation program must be prepared according to the place this activity has in education. Selection of test materials therefore should be according to the basic controls exerted on this program.

B. In order that an educational program can be projected, the characteristics of people correlated with objectives desired should be known. The programs of health, physical, and recreation education condition people physically, mentally, emotionally, and socially. Knowledge therefore is necessary concerning these qualities in order to determine the nature and scope of the program, to evaluate teaching procedure, and to determine the degree of achievement.

III. Part C: Statements of Practices. (An outline summary of the current practices with respect to the specific functions necessary for effective professional practice.) (See Chapter 5 for additional format of report.)

- A. Basic influences
 - 1. Philosophy

INTRODUCTION

- a. In most instances the place of measurement and evaluation in the direction of the program is not understood.
- b. Etc.

2. Etc.

B. Characteristics of people (physical body build, nutritional status, etc.)

C. Etc.

IV. Part D: Statements of Problems. (Outline statements of the problems needing research in order to implement present knowledge, thereby yielding a factual basis for professional practices.) (See Chapter 6 for additional format of report.)

A. What constitutes a desirable measurement and evaluation program for the various institutional levels and for public and private institutions?

B. What facilities and equipment are necessary to meet the conditions of the measurement and evaluation program described in A?

C. Etc.

V. Part E: Statements of Proposed Solutions. (What evidence is available which suggests desirable professional practice for selected problem?)

A. (Name of committee member) What constitutes a desirable measurement and evaluation program for the various institutional levels and for public and private institutions?

1. Statement of solution

2. Bibliography

B. (Name of committee member), etc.

C. Etc.

VI. Bibliography (sources used for committee report)

The Individual Project

There are two steps in completing the individual project: (1) the selection of a problem which is of interest and concern to the student, and the preparation of an outline of design considering all the elements for the solution of the problem, and (2) the conduct of the research and the preparation of a report presenting the facts with interpretations and final conclusions.

The project must demonstrate the student's ability to use the scientific method and necessary evidence to yield a satisfactory answer to the problem. (Procedures on the preparation of a research outline and project are described in Chapter 8.)

EVALUATION

To improve procedure and increase participation, committee operation and individual participation may be evaluated by an observer. The

observer should have guidance from the instructor in preparing reports. As an aid in the evaluative process, tally records and check sheets may be used. Introduction of the evaluation procedure to the class by an experienced observer is another method used. In such a situation, this role is taken over by committee members as quickly as possible. It is important that observer evaluation should not be used for grading purposes.

Some criteria which may be useful in evaluating the group are:

1. How well is the committee progressing toward the goals it has set?
2. How well is the committee using its members' skills to contribute toward its goals?
3. How well is the committee working toward the goals of society and within the democratic process?
4. How well are the individual members of the committee improving in contributory skills and participating more widely in activities?

Grading the progress of class members can be accomplished in numerous ways. Written and oral responses provide such opportunities. If desired, contributions to committee procedure and action can serve as additional means. Three occasions are provided for close observation of individual achievement: Part E, which is concerned with a concise, proposed problem solution by a committee member; the individual project outline, which is the research design developed by each student; and the final individual project. Written critiques by students of the various committee reports can also assist in the grading process. Other methods will suggest themselves to instructors during the course progress.

TWO SEMESTER PROBLEMS COURSE

Time Schedule of Presentations—1st Semester

<i>Time Period</i>	<i>Schedule of Presentations</i>
1st Week	Discussion, Introduction
2nd Week	Seminar, Part A
3rd Week	Seminar, Part B
4th Week	Seminar, Individual Project
5th Week	Seminar, Part C
6th Week	Seminar, Individual Project
7th Week	Committee I, Parts A,B,C
8th Week	Committee II, Parts A,B,C
9th Week	Seminar, Individual Project (1st Draft, Individual Project Outline)
10th Week	Committee III, Parts A,B,C
11th Week	Committee IV, Parts A,B,C
12th Week	Committee V, Parts A,B,C
13th Week	Committee VI, Parts A,B,C
14th Week	Committee VII, Parts A,B,C
15th Week	Committee VIII, Parts A,B,C
16th Week	Committee IX, Parts A,B,C (Final Written Report Due, Parts A,B,C) (Final Report, Individual Project Outline)

INTRODUCTION

Committee Presentation Requirements

- (1) All reports (Parts A, B, and C) must be mimeographed and distributed to the members of the class *one week* prior to committee presentation.
- (2) Each committee will serve as a panel to answer questions concerning report.

Time Schedule of Presentations and Requirements—2nd Semester

<i>Time Period</i>		<i>Schedule of Presentations</i>
1st Week	Lecture Discussion:	Problem Analysis (1st period) Individual Project (2nd period)
2nd Week	Seminar:	Problem Identification
3rd Week	Seminar:	Problem Solutions
4th Week	Part D:	Committee I
5th Week	Part D:	Committees II and III
6th Week	Part D:	Committees IV and V
7th Week	Part D:	Committees VI and VII
8th Week	Part D:	Committees VIII and IX
9th Week	Seminar:	Individual Project
10th Week	Part E:	Committee I
11th Week	Part E:	Committee II
12th Week	Part E:	Committees III and IV
13th Week	Part E:	Committees V and VI
14th Week	Seminar:	Individual Project
15th Week	Part E:	Committee VII and VIII
16th Week	Part E:	Committee IX Final Written Report Due, Parts D and E; Individual Project

ONE SEMESTER PROBLEMS COURSE

Time Schedule of Presentations

<i>Time Period</i>	<i>Schedule of Presentations</i>
1st Week	Discussion, Introduction
2nd Week	Seminar, Parts A,B,C
3rd Week	Seminar, Parts D,E
4th Week	Committee I, Parts A,B,C,D
5th Week	Committee II, Parts A,B,C,D
6th Week	" III, Parts A,B,C,D
7th Week	" IV, Parts A,B,C,D
8th Week	" V, Parts A,B,C,D
9th Week	" VI, Parts A,B,C,D
10th Week	" VII, Parts A,B,C,D
11th Week	" VIII, Parts A,B,C,D
12th Week	" IX, Parts A,B,C,D
13th Week	Committees I, II, III, Part E
14th Week	" IV, V, VI, Part E
15th Week	" VII, VIII, IX, Part E
16th Week	Final Written Report Due, Parts A,B,C,D,E

PART I

THE SETTING FOR SOLVING EDUCATIONAL PROBLEMS

Preface to Part I

The nature and scope of educational problems are determined by the references applied for identification. These references are the educator's breadth of knowledge, understanding and appreciation of the educational process, and the needs of the individual and society for education. Unfortunately, in many instances these references never exceed the immediate local needs and, more seriously, never refer to the individual and society, but have a traditional reference to what education "ought to be." The basic philosophical purpose underlying this section of the text is that of viewing international problems as problems of national, state, and local concern. Many immediate local needs exist, but these should be interpreted in the larger framework of the purposes and needs of education. Health, physical, and recreation education are also viewed in terms of the total purposes of education. Anything short of this reference for problem identification and solution will fail to yield a full measure of the potentialities of these special fields of education. The philosophy that health, physical, and recreation education are *means* to an end, not ends, is considered a fundamental starting reference. The problem of identifying and solving problems, therefore, becomes one of determining what these special phases of education can do to help individuals and a society to develop, survive, and adjust in the present world. Viewing the total purposes of education and the implications for health, physical, and recreation education then becomes essential.

The contents of Chapters 1 and 2 should be supplemented with cur-

rent literature relating to the purposes of education. Structure and procedures should remain the same if the philosophy of problem identification and solution is accepted. Implications for health, physical, and recreation education may be developed in more detail. In this connection, implications may be derived for all functions of these fields as presented in Chapter 3.

CHAPTER 1

Modern Philosophy of Education

The American society is democratic. It encourages and initiates activity toward equal rights and freedom for all, regardless of status, beliefs, or experiences. As such, it vests its power for existence in the law, which protects through equal justice for its members, and education, which reinforces the values of the law and American society.

Education is given the responsibility of providing experiences that will encourage participation by all to the end that individuals may be fitted for wholesome living in an ever changing society. This implies that these learning activities must be present so that relationships in practical and liberal living are established. Furthermore, responsibility of the individual to the society is emphasized in such a setting.

In the American society, stress is given the concept that education for the individual is most important. The theory is based on the realization that individuals can improve their conditions by education and that collective improvement will result in desired community changes. Some intimation is given that the development of the individual into an integrated personality is necessary for individual and community control. If education is to fulfill its responsibility, it must encourage this integrative process by giving strength to the individual so that he will understand and appreciate the sifting of ideas and the selection of desirable concepts.

EDUCATION FOR THE INDIVIDUAL

Education for the individual involves personal development, survival, and adjustment in society, as well as a responsibility to the society. Personal development finds its base in optimum health, which implies desirable physical, mental, emotional, and social development and adjustment. Self-reliance brought about by a set of values and skills in communicative arts provides power to that base. Individual education also involves opportunities for creative expression and worthy use of leisure time to reveal capacities for esthetic expression. Within the struc-

ture of the individual, education stimulates the growth of, or reinforces, a philosophy compatible with the self and social standards so that sensitivity to inequality and injustice prevails and a proper balance between leadership and followership ensues. Finally, education prepares the individual for a vocation.

Education for responsibility to society includes the knowledge and appreciation of that responsibility and the benefits accruing from the societal environment. This can be brought about by a knowledge and appreciation of the basic facts of personal and family living, ethical concepts, the proper relation between tradition and change, and an insight into human motives and hopes. Skills and habits in critical and constructive thinking that result from intelligent procurement, analysis, and evaluation of data are desirable aims of education for responsibility to society. To produce societal responsibilities in the individual, the kind and amount of education must be appropriate to the individual's abilities and capacities and the evolvement of vocational or professional skills.

EDUCATION FOR SOCIETY

Education for society involves two aspects. The first concerns the preparation for living in a society; the second, understanding and cooperation for peace and world citizenship. Living in a society suggests an understanding and appreciation of political, social, and economic processes as well as the accomplishments and problems of the society. This, in turn, involves allegiance to one's society and support of its policies and practices. To fortify such educational concepts, a fuller realization of, and practice in, democratic living need to take place.

Education for peace and international citizenship is emphasized through the solution of economic, health, political, and social problems of the world. Such problem solving results from a knowledge and understanding of, and appreciation for, needs, hopes, attitudes, and customs of people. An intense sensitivity to the emotions, rights, and fundamental needs of man is necessary to supply the forces that will precipitate peoples of the world into action against hunger, misery, and despair.

The purposes of American education are to prepare individuals for full living; to inculcate practices in solving social problems; to develop democratic behavior; and to provide for international understanding and cooperation. Education is a world-wide problem that concerns the various peoples, their conflicts and rivalries, their hatreds and prejudices. It promotes the theory that men can be brought together for the solution of problems. The only necessity is to provide an education that will enable people to solve their own problems.

UNDERSTANDING AND COOPERATION FOR PEACE AND WORLD CITIZENSHIP

Today no part of the world can exist in isolation. Scientific development has brought people physically closer and has made them think more of their place in the world community and their interdependence. Lines of communication between continents have literally become shorter; travel times are now less than the incubation period of disease. In this modern world, therefore, group living implies living and working with all the peoples of the world. Such living can be effective only when it is accomplished in an atmosphere of peaceful understanding and cooperation.

The Product of International Understanding

This nation is of such recent origin that memories of the struggle to establish and maintain identity are still fresh. Isolationism and reluctance to engage in working with and assisting other nations marked that era of development, and even today there are those in positions of leadership who fight to retain the *status quo* of aloofness. Yet how can the propinquity of nations be ignored? Peace, prosperity, and security for the citizens of this nation can result only through desirable cooperative actions with the people of other nations.

Peace must persist if nations are to survive. Since wars begin in the minds of men and it is in the minds of men that the defenses of peace must be constructed, it is the prerogative of education to assist in the assurance of that peace. (For a concise statement of this problem, see the Constitution of the United Nations Educational, Scientific, and Cultural Organization—UNESCO.) The task of such education is great; national concepts embracing strength, power, and competition must be sifted to remove those which are antagonistic to world-mindedness. Cooperation, exchange of cultural values and attitudes of understanding, and acceptance of human worth must be substituted if peace is to become a reality.

Communication must be free and unfettered, for international understanding is dependent upon the ready exchange of heritage, diplomacy, cultures, and civilizations. It is through the opportunities presented by the communicative arts that a greater comprehension of individual responsibility for accepting and taking part in world affairs results.

No clearer or more succinct statement concerning the aims of international understanding has been developed than the Preamble of the United Nations Charter, which says:

We, the Peoples of the United Nations, Determined to save succeeding generations from the scourge of war which twice in our lifetime has brought untold

sorrow to mankind, and to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small, and to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and to promote social progress and better standards of life in social freedom,

And For These Ends

to practice tolerance and live together in peace with one another as good neighbors, and to unite our strength and to maintain international peace and security, and to ensure, by the acceptance of principles and the institution of methods, that armed force shall not be used, save in the common interest, and to employ international machinery for the promotion of the economic and social advancement of all peoples,

Have Resolved to Combine Our Efforts To Accomplish These Aims! ¹

Agencies for International Understanding

To prepare for world citizenship, it is desirable to strengthen community citizenship. Developing active support for the large community is effectively accomplished by the experiences gained in the smaller community. Starting with citizenship problems of the school, then gradually moving outward to encompass those in the community, state, nation, and finally the world, would provide progressive steps to positive understanding and behavior.

Education is the most important single agency which can be devoted to the spread of international good will. Rightfully applied, the concepts of internationalism can permeate the thinking, writings, and researches of scientists, teachers, students, editors, businessmen, labor leaders, farmers, professional workers, and others who make up the structure of the social, political, and economic world. Education can present the direct considerations of human understanding and world citizenship to a greater number of people and in a more effective way than can any other agency or institution.

It falls upon the schools in this nation and throughout the world to take the responsibility for spreading world concepts. UNESCO has taken up that challenge. Its work lies in the arts, letters, and sciences, and it was established as a specialized agency of the United Nations for the purpose of advancing international peace and the welfare of man through educational and scientific and cultural cooperation of the peoples of the world. Desirable communication between nations can more readily take place through the arts, letters, and sciences since they are less apt to be influenced by political ideologies, economic gains, or vested interests. When peoples are attracted through common interests and concern, such as sculpture, music, and writing, then cooperation in solution of world problems is more likely to result. UNESCO was born because the members of

¹ *Basic Facts About the United Nations*. New York: United Nations, Department of Public Information, January, 1947, p. 2.

that agency believed in "full and equal opportunities for all, in the unrestricted pursuit of objective truth, and in the free exchange of ideas and knowledge," and organized "to develop and to increase the means of communication between their peoples and to employ these means for the purposes of mutual understanding and a truer and more perfect knowledge of each other's lives."

If UNESCO is to remove the obstacles preventing the free flow of ideas and results, it needs the help of education.

The Process for International Understanding

International education must consider emphases in these directions: understanding of one's culture and civilization; understanding of world dimensions; relationships of contemporary happenings with potentials in the future; moral and spiritual components in human worth.

Language is the basic art of communication, and this implies that languages alive today will be learned functionally through application. The efficacy of radio, motion picture, television, newspapers, magazines, and books as tools of communication is dependent upon such application. When man learns the language of the world through these tools, that language will produce the desired responses, because it will be understood by all.

Understanding people is also necessary for successful communication. This involves understanding oneself and understanding others, and, for ready acceptance, must be supported by conviction. An objective, critical analysis of the facts is necessary to select those that support the concept. If the information is inapplicable, new facts must be obtained. A knowledge of cultures and traditions assists in the process of understanding. Contact with persons of different cultural backgrounds strengthens the understanding of others. Much of this can be obtained through travel; however, since this is not possible for many persons, information on various cultural concepts must be given to the persons studying them. A study of the culture of ethnic groups in the community offers the most desirable firsthand method of promoting understanding, for this experience strengthens the bond between groups and the community.

Celebrations of international character should be utilized to exchange information on cultures and attitudes. Similar values can be claimed for the use of foreign teachers and exchange students. The latter can be in a position to take to their countries some of the flavor and desirable behavior of this nation. Summer travel to different countries assists in broadening the scope of understanding. Visits to the United Nations headquarters in New York City to meet with the representatives of many nations and to learn of their national cultures can be exceedingly valuable. Exhibits, demonstrations, plays, operas, musical programs, dances and festivals are additional means of bringing living cultural

experiences within the reach of many who cannot go to the countries where such cultures originate.

Schools throughout the world should teach attitudes that will assure the peaceful cooperation of all nations. This can be effectively accomplished through the knowledge and understanding arising from firsthand experience in world organizations. Knowing the organization and operation of such international agencies and participating in their programs tend to encourage support for their concepts. As such interest for world organizations is developed, interest in and loyalty to one's own country are strengthened.

To foster the development of worthwhile attitudes in persons and to encourage their taking part in world destiny, education must emphasize objective, critical thinking in the selection of information.

DEVELOPING DEMOCRATIC BEHAVIOR

Democracy is necessary to insure man's fullest growth. It provides opportunities for the use of creative powers; it supplies opportunities that evoke responses in initiative, responsibility, sensitiveness, and conscientiousness; and it permits the growth of understanding and competence in personal worth and creativity. Such situations occur when the individual assumes his full share of responsibility in working to promote the policies and goals of the groups to which he belongs. In this way, the value of the individual contribution enhances the group, yet the dignity of the individual is preserved, for he is permitted to devote time to duties which are in accord with the group development.

The Product of Democratic Behavior

It has been said that man submerges his individuality as he works within a group until the point when dissolution occurs and identity is lost. This is not so in a democratic state. Each group member has an equal opportunity to realize and enjoy his own capacities and creative abilities. It is assumed, therefore, that democracy provides a fair chance for everyone. This may appear to be in contradiction to the democratic concept that individual differences must be recognized. How is it possible to give equal opportunities to persons born with different capacities and aptitudes? Individuality is not in conflict with equalization of opportunities, since the latter has concern with educational development and this development enables a person to take advantage of every situation for personal growth.

In our democracy, adjustment in personal development is largely governed by each individual's native talents. Just as one man will have a greater potential for physical prowess, another will have the intellectual capacity for critical thinking. Each will view the opportunities presented

and utilize those elements which he can recognize and use. Equality is not concerned with the capacities and aptitudes of men, nor with the manner in which men attack a problem; it is simply giving each individual the chance to do the best he can, to achieve to his fullest extent. Education must practice this kind of equality if democracy is to aid in the survival of the individual and the group.

Each individual reacts differently to his environment. Attitudes and behavior emanate from his past experiences and provide him with familiar pathways of behavior to use in future experiences. Since each person responds differently to the same external stimuli, it can be reasoned that the basis for the difference rests upon the uniqueness of his inheritance. It is from this that personality develops. Furthermore, because no two individuals develop the same personality due to differences in heredity and experience, behavior in a group will vary with each person. There are enough common elements of action, however, to permit the group to move forward in its problem solving. Interactions of individuals and the free exchange of ideas allow for progressive action.

Democratic behavior means that the individual in the group assumes as much responsibility as he is capable of handling and participates actively in the group experiences according to his capacities and abilities. In addition to concern for his own welfare, the individual also develops a feeling for the welfare of the other group members. It would appear that basic needs serve as forces that motivate man toward efforts to satisfy those needs. In a democracy, cooperative and interdependent activity is generally utilized to satisfy many basic needs. As man observes the ease and dispatch with which problems are solved through group action, he is more apt to encourage group organization and partake in its activities.

What should be the goals of democratic behavior? Certainly they include an appreciation of the rights and privileges of democracy, and a sense of responsibility to make these rights available to everyone. This will mean that laws must be promulgated to preserve those rights and privileges, and that all must abide by and support such laws. Individuals should have an understanding of and sincere allegiance to democratic living. Such persons can develop these concepts only if they are mature, and if they participate constructively in activities of the democratic society. Major goals are those which involve interest in human relations and a desire to take part in political affairs. The need for an appreciation and understanding of effective political leadership and an interest in training for that leadership are essential. Citizens should desire sincerely to develop and maintain intergroup understanding and respect, and they should have knowledge and understanding of international problems. Finally, there must be an understanding of the American way of life, and a desire to translate into action the free enterprise of our democracy.

In order to fulfill its role in a democratic society, education must be inclusive. It must encompass those at the lower limits of the scale of understanding and intelligence as well as those at the upper limits. Since they constitute the majority, those who fall in between the two extremes are invariably considered in democratic educational practice. But those at the extremes of the intelligence continuum are sometimes ignored; challenging and provocative experiences are not provided individuals who would delight in working on them, or those individuals at the lower end of the intelligence scale are assigned activities that are not within their aptitude, knowledge, or interest.

Certain of the components of personality must be enhanced before persons can be expected to work effectively for democracy. Development of knowledge of, attitudes toward, and behavior in the democratic process is necessary. Self-discipline and patience must be practiced if group action is to proceed optimally. Democracy implies that its adherents will have such values as courage, persistence, initiative, self-reliance, and resourcefulness. Important, also, are respect for the rights of others, justice, and self-control.

Processes for Democratic Behavior

The well-rounded development of the individual is a prime requisite for a successful democracy. Education should discover aptitudes and train the person to use his talents to the fullest extent. That agency which does not encourage the improvement of the personal worth of its members does not contribute to self-realization. To do this, freedom from restraint of intellect and spirit and development of personal qualities must take place. Every phase of education must be responsible for enhancing those personal qualities. Such processes must not be haphazard or left to chance.

For the individual to experience fully the freedom in true democracy, social responsibility must be a part of his thinking and behavior. Personal development must be interrelated with public development; personal gain must be interacting with social gain. The tendency for citizens to participate less in public affairs suggests that personal gain has been overemphasized, and public gain has lost its values. If democratic society is to persist, education must give its recipients inspirational concepts that will encourage their taking part in communal affairs for the general welfare, and provide as well the knowledge and skill necessary for personal careers.

The need for inculcating a clear understanding of democracy is equally important. The acceptance of human worth and the dignity and value of man is fundamental. Since each individual is endowed with the inalienable rights of life, liberty, and the pursuit of happiness, education must assist in preserving these rights. The right of equality in opportunity, in voting, and holding office; the rights of a minority; freedom of speech and all forms of expression; freedom of association, freedom from want and from

fear and from ignorance: these are the bases for democracy and education is obligated to uphold them. These fundamental principles are fixed, stable, and secure; but the methods and processes should be flexible and changing to meet the needs of man.

For democracy to be understood and practiced, the processes of the life of its people must be understood. Such procedures involve the functioning of democratic governments, political parties, lobbies, and pressure groups. Education must provide inspiration for the acceptance of democracy, through a consideration of its greatness weighed against its weaknesses in action. The disparity between principle and practice must be decreased; accomplishments must be strengthened and increased. Despite the belief in human worth and the dignity of man, wars have been plaguing society and human life has become impersonal. The dedication to the equality of man is not complete; inequalities exist throughout our nation and the world. Disease, hunger, poverty, and ignorance persist despite our attempts to eliminate them. Emotion and prejudice largely control communications; freedom of expression and worship exist only in a limited way; and minorities are disparaged and ridiculed by the majority. In order to strengthen democracy, education must work to eradicate these defects.

A rebirth of conscious democracy is needed in our society. Citizens should be given experience in living that will teach the ideals of free society. Words will not bring improved relationships between men and nations; *action is needed*. Studying and discussing democracy alone cannot transform principles of desirable living into behavior. There must be living participation in democratic processes. Education must provide opportunities for the discussion of controversial issues. It is the give and take of free exchange that promotes understanding. Authoritarian concepts must disappear from educational precepts; enthusiasm for and allegiance to the democratic life can come about only when the restrictions of authoritarianism are removed.

Inspiring persons to the promotion of democracy is a hard task. Yet, once accomplished, it is the best and simplest road to international understanding, for with it comes an appreciation of other cultures. Cooperation among nations will follow.

There must be a continuous reconstruction in democratic education of individual values as a base for the determination of needs. Social concepts and environmental factors supply some index by which the person can make an intelligent choice.

Every growing experience should have intrinsic significance in democratic worth. It thus seems unreasonable to force upon education, through authoritarian edicts, those goals that are from external sources and which ignore the values that accrue from pupil experiences.

Citizenship is the contribution one makes to the common good; there-

fore it is necessary that education be provided to fit the citizen for his tasks. Learning to make judgments, to weigh evidence, to make proper choices is the responsibility of the citizen; education is responsible for seeing that opportunities for such growth are given.

The education of a people in a democracy can never be achieved without the desire and consent of the people. Didacticism, coercion, force are undesirable. Democracy must be applied as an enlightenment, not as a darkness of suspicion.

EDUCATION FOR THE SOLUTION OF SOCIAL PROBLEMS

One fundamental objective of educational experience is to achieve competence in the identification and solution of social problems. Society is constantly changing or in the process of reconstruction and must readjust or change satisfactorily in order to obviate destruction. It is reasonable to assume that social change and education are interacting forces and it cannot be determined where one begins and the other ends. Neither can it be said which precipitates the other, for the process of interaction never ceases; education is dynamic, as is society.

Change is effective only as long as it is governed by the consensus of the people. It is their desires and aims that give direction to this change. As social progress advances, so does education, and individuals gain more experience in the solution of constantly arising problems. From these experiences guides are learned and suggest limitations or controls for the change.

Although forces constantly suggest and drive society to change, there are other powerful forces resisting the efforts for change. Individuals come together to form social organizations or agencies and through their auspices attempt to serve society. As the social group grows, it gains strength and tends to uphold tradition, ignoring demands for change. In many instances, the resistance to accepting new paths or direction of social movement is prompted by the concepts of a minority or of single individuals who have concern only with personal control and gain. These few may exert such influence upon the greater number of people that they hesitate to accept new ideas. This does not imply that change is always desirable. At times, the change may have occurred before an adequate solution was obtained to the problem which suggested the change.

The truth in social development and adjustment rests with the acceptance of the new mode by agreement of the largest number of the group. Such agreement can be arrived at only after the sifting and selection of facts yield an adequate solution to the existing problem. Group thinking and action are basic to finding social truths.

In education for the solution of social problems, experience in group ac-

tion is essential. Learning to meet problems intelligently and effectively assists in maintaining the positive values of social change. For group action to be successful, cooperative effort through communication must stimulate an interchange of ideas.

Cooperative planning and action and the learning that result are fundamental in the democratic society. Through group endeavor, goals to be sought are identified; the importance and magnitude of these goals are specified; direction is given to irrational drives so that expression is channelized; vested interests and the desire to resist change are countered; concepts are developed that tend to structure desirable pathways for the cultural movement of society.

Understanding of self and members of the group occurs as the individual considers his relation to society. Getting along with others, therefore, is a major premise in education, and it is imperative that provision be made for full expression of self-realization.

Self-realization, individualistic in character, implies full development; yet such development is possible only through interaction among persons in groups. Self-realization comes about through self-direction, self-expression, and self-control exercised in group membership.

It is within the group that circumstances are provided in which gaining approval of other group members becomes important. If group experience facilitates a free exchange of thinking, with each member participating to his capacity, there result an understanding and significance of the action to be taken and an enthusiasm for such action.

The end of every educational experience is action or behavior, but satisfactory accomplishments take place only when the people understand the purposes of that action. Merely transferring knowledge from one person to another does not insure understanding; neither does it precipitate effective behavior in a situation. If the individual works on a problem, he is more apt to accept attitudes and points of view as his own, and he will be willing to help execute any plans which he has had a part in developing.

It cannot be assumed that groups are collections of individuals and that the individuals act for themselves. Action and behavior in our society today are based upon relationships with others. The individual is a member of many groups and makes his contributions to society through them. He is part of home, school, industry, fraternity, lodge, club, or group of friends. If he shares in friendship and understanding provided within these groups, he considers what the group does and becomes responsible for carrying out the decisions for which he contributed his share of thinking.

If it is to be truly a group decision, the individuals of the group must plan and act harmoniously. Each must be given the opportunity to participate in the thinking and action phases; each must provide his portion of

the decision for others to consider. If each member of a group provides ideas and desires, the decision emanating from the group thinking will embody group action to which all members are adjusted and in which all may take part.

The Product of Group Activity

The development of an effective social group is related to the development of the individual within the group. An individual's growth occurs in relation with others. Attaining identity results primarily from one's utilization of the attitudes and behavior of the group, and from living according to what the group determines good or bad, right or wrong. If the group member is to maintain his membership he must communicate effectively with others; he must readily adjust to others and see their points of view; he must experience sharing in making decisions and in evaluating his contributions to the solution of social problems.

Developing self-reliance is an important outcome of group experience. As self-dependence gradually improves, the individual becomes increasingly able to regulate and control his own experiences. He assumes more and more responsibility for his behavior since he can appraise his activities and environment, and understand his problem. From this, he is able to arrive at a pattern of behavior which will enable him to solve the situation he is facing. Being responsible for his decisions, he also is responsible for the results of the choices he makes. To be in a position to make proper choices, the individual must develop critical adjustments.

Discerning the desirable aspects of a situation comes only through experience and maturation. Maturation suggests that the individual has grown in ability to make adequate adjustments to the group and is able to respond to various aspects of the problem faced by the group. Critical evaluation of events, persons, and groups comes about when the individual can select from his experiences those responses which evolve from adequate judgment. This will tend to control the self and the environment and provide greater meaning to the solution of social problems. Through such decisions, human relationships take on greater meaning.

While the group is engaged in problem solving, the members must be able to adapt to the thinking of the group. Inflexibility prevents ready solutions to problems and retards maturation of individuals. Flexibility is necessary to avoid fixed and routine responses, but flexibility that is founded on immaturity can only bring inadequate adjustments. It is important that the experiences be presented so that they are related to the growing abilities of the individual who can then make his adjustments within his capacities.

Wider participation in group experiences is the aim of the individual who is seeking satisfactory adjustments. Interpersonal relationships increase in complexity as the individual matures, yet he is able to respond adequately to such problems as may arise because he has gained in

experience. Through this increased group activity, there comes the realization of the self and the need for understanding and solving individual problems.

For a group to have successful activity, certain fundamental conditions must be present. The desirable social group has within its membership a range of individual differences. It is necessary that integration of the concepts of each member within the group-thinking take place. This suggests cooperation. Group activity cannot be successful and efficient if people do not work in a friendly, helpful spirit toward the solution of common problems.

Individual responsibility and freedom are essential for desirable group activity. Giving the member a feeling of worth and belonging does much to make that member feel a part of the group. Freedom suggests that the selection and solution of a problem should proceed within the limits of choice and the individual's capacities. The group also guarantees creativity of initiative and freedom for differences in beliefs, opinions, and speech. From this respect for the individual, the respect for the group order and authority readily follows.

Finally, the individual must be ready to submerge his identity and his vested interests in favor of the group welfare.

The Process for Solving Social Problems

Social problems cannot be solved by repression, nor can they be solved by other negative methods. The most effective process must be that which will involve the individual so that he is responsible for his problem selection and will work to the limit of his capacities and can make an optimum contribution toward a group decision. Such an activity is the group process.

The group process is the means by which an individual can participate with satisfaction to himself and not feel that his efforts will be lost or submerged by forces too great for him to cope with. The group experience is a means by which resources of individuals are mobilized for common agreement on goals and for desirable action in the attainment of such goals. This method is one of democratic socialization and is the framework within which the individual improves himself as he contributes to the improvement of society.

A group which meets to work out solutions to common problems often includes a chairman, a leader, an observer to assist in directing discussion toward the solution of problems pertinent to the discussion, resource persons to supply information which the group desires, a recorder, and participants.

The Chairman

The chairman sets the stage. He discusses briefly the over-all objectives of the meeting and emphasizes its importance. He introduces the leader.

The Leader

If success is to be achieved, the leader must have certain understandings of the individuals and the process. Opportunities must be provided for every individual to make a contribution despite differences in aptitudes and capacities. Despite a diversity of backgrounds, concepts, and ways of working within the group, agreement can be obtained on common problems and work can proceed toward their solution. To arrive at solutions satisfactorily, individual participation is needed early in the process. This assists in welding the group into an effective working force. The leader must guard against pushing the group faster than it can go, for feelings of insecurity may result and progress may be slowed. The leader must be aware that differences are to be integrated rather than reconciled in discussion.

Facilitation of the group experience can often be accomplished by the leader. Securing a desirable psychological environment is one of his tasks. Two ways of doing this are by introducing the participants to each other through an appropriate technique, and by maintaining the degree of informality that will assure best progress of the group.

Adjusting the length of the meeting is another means of facilitating the work. Agreement on opening and closing times, provision of short rest and relaxation periods, and allowing for necessary readjustment of time schedules are some effective ways. With the time adjustment there is also the desirability of giving the group the opportunity to set its goals or to revise them as necessary.

A clear definition of the project and an understanding of its scope by the group members will facilitate a continuous attack on the problem. Frequent summarizing of important facts helps to re-orient the thinking and tends to coordinate group efforts. There is need for sufficient time to pool facts and resolve conflicting ideas or values.

The leader can insure successful group discussion by giving adequate opportunities for participation to the entire membership and by preventing a few persons from monopolizing the time. Some emphasis can be given to special abilities of group members by calling on them when they are qualified to respond. Varying the organizational procedure is a good device for relieving monotony and for providing opportunities for the entire group to meet at times.

Basic responsibilities of the leader in the group process relate to understanding and communication. He must think through the problem before the meetings even though his solution will not be transmitted to the group. It is necessary that he encourage different points of view concerning the problem and insure understanding of those points by the group by suggesting clarification where necessary. Guarding against fallacies or involved technicalities and guiding the discussion away from

sharp conflict and tension are important to keep the group working harmoniously.

The Observer

The observer works with the leader and the recorder. He functions best when he considers himself a member of the group and is interested in the solution of the problem. He assists the leader in keeping the group on pertinent discussion and works with the recorder to keep the records understandable and free of extraneous material. Occasionally he may summarize the progress of the group.

The Resource Person

Such an individual is an expert in a particular area being discussed and is available to volunteer information or answer questions. He considers himself a member of the group and has interest in the problem solution.

The Participants

Members of the group attempting to solve the common problems can effectively contribute to the success of the group activity by observing certain tenets. First, it should be recognized that group members proceed at different rates in establishing relationships and grasping ideas; some will be slow, others quick. Secondly, the group must move toward the goals with speed sufficient to keep the group secure and identified with the problem. Moving too rapidly causes the slower thinking and acting members to withdraw from the group; moving too slowly results in impatience and intolerance on the part of those who more readily grasp the concepts presented. Participants must clearly recognize that the goal set by the group is never fixed; it is an emerging goal.

Contributions by members of a group can be made in many ways. There are certain practices, however, that are likely to contribute to the success of the participant. He must be willing to do active thinking on the problem and delay judgment until the time that correct and authentic information is available. He must listen to contributions by others and relate them to what he thinks about the problem; he must make his contributions to the group with the idea that all contributions will be of value to him. The participant must state his points briefly and clearly and avoid argument over details and technicalities. Furthermore, he should challenge ideas he cannot accept and request clarification of points when necessary. Certainly, it is important for him to distinguish between the intent of the person speaking and the manner the speaker presents his views.

The group process is a valuable technique to be used in solving social problems. It implies that a group of people interested in a common problem can reach a solution through group discussion. That problems are being effectively solved through the use of this technique is a tribute to

its value. In our democratic society group problem solving is necessary. Democracy cannot survive unless we learn to develop intelligently and effectively satisfactory solutions of common problems through group interaction.

EDUCATION FOR FULL LIVING

The individual actively strives to satisfy basic needs and wants and attempts to maintain himself. As the individual grows, he must adjust his behavior to his environment. This adjustment goes on constantly because of the dynamic quality of the environment. There is the need for understanding individuals, their ability to react to situations, and their intercultural and interpersonal relationships.

Changing conditions of society are reflected in the insecurities, inadequacies, and confusion found in many persons. Modern life encourages anxiety and maladjustments. A primary goal in education is to develop a well-rounded, self-disciplined, self-directing person who is able to adjust readily to the rapidly changing social order. Individual talents must be discovered, trained, and used to the fullest extent. The responsibility for the development of such personal qualities rests with every phase of educational living.

The Product of Full Living

Adjustments which individuals achieve are behavior patterns made in response to an external stimulus. When this adjustment results in a change within the individual, a need, want, drive, or desire results. There is an attempt by the individual to seek relief from the irritation caused by the need or want. These constantly occurring shifts in adjustment as the individual strives for equilibrium are categorized as behavior. This behavior is therefore purposeful.

If the individual is to continue optimum existence he will need air, food, water, sufficient rest to recover from fatigue, relief from pain, protection from injury and extremes of environment, and protection of other aspects of personal health. To satisfy these needs, effective learning must take place. It is only through experiences determined by interaction with others that he learns to meet his physiological needs. Physical health and vigor provide an opportunity for the individual to attain the highest level of full living.

As the individual develops, he desires to find ways of satisfying his psychological needs. He seeks to obtain and enjoy what he wants, and the stronger the want, the greater is the satisfaction of achievement. Everyone desires to be successful at doing something. That individual who has a feeling of accomplishment develops confidence and direction. That

person who fails consistently often stops trying to succeed and may resort to defensive mechanisms to bolster his self-esteem.

The need for security is another want. A lack of security prevents the development of a wholesome personality, and it may lead to mental disturbances, restlessness, rebelliousness, and other overt manifestations.

The individual needs status or recognition. In the group he exhibits a strong desire for prestige, and satisfying this desire tends to provide a measure of security.

If man is to live effectively, his attitudes and behavior must be mutually in harmony. Thus, before the individual can live securely, emotion and behavior must be controlled by reason and be in keeping with the environment. This concept of mental wholeness implies that internal adjustment is taking place, that he is in control of emotion and behavior.

The individual's development depends upon his social environment. His growth takes place in his relationships with others and the social standards set by a group or a culture. Living effectively within a society involves learning to share and work with others, adopting social customs and behavior, and achieving satisfaction in living with others. It is this social group which determines what is good or bad, and it is the individual's behavior within the group which determines the level of maturity he has reached.

Opportunities that will enable persons to become constructive and contributing members of the group must be part of daily living. Sharing in decision-making, finding worthwhile outlets for creative expression, communicating effectively with others, and satisfying desires for good personal relationships are experiences that assist in full development.

The individual responds to a situation as a whole organism. Each new action involves the entire person to some extent, and changes in environment bring about some degree of alteration in the whole individual. The reorganization that takes place within the person is largely dependent upon the impact of the experience; however, it involves the physical (neuro-muscular or glandular), mental (intellectual insight), emotional (acceptance or rejection of factors in the experience), and social (interaction or interplay among individuals in group) interrelated and inseparable components of the individual.

The Process for Full Living

The prime emphasis for full living must be placed upon effective application of knowledge and understanding so that the individual can solve problems.

Intelligent self-direction must be developed as early in life as is feasible. Coercive action prevents the gaining of desirable knowledges, attitudes, and behavior; these must stem from the self and must involve the making of proper choices.

Realities of life at times are starkly serious. Shaping individuals to fit within the molds of these realities is a common procedure that yields only indecisiveness and control over the thinking processes of others. Shielding individuals from the dangers of life through escape mechanisms provides no real learning for the self to face reality. There must be experiences that will help persons to see life in its various aspects and to learn when and how improvements can be made. Individuals should have many contacts with life and should be able to see the possible results of these contacts as well as the direction that positive action should take. This suggests the need for training individuals to make proper choices. No positive values accrue when the individual is placed in a position of having to make a choice if he is not equipped for that process. He must not be indoctrinated or forced into a decision without thinking it through; he must be guided into making decisions regarding life, and toward acceptance of the choices he has made.

The ways in which education can provide opportunities for full living are numerous. Increased provision for the basic needs of the individual is one procedure. Appraising the strengths and weaknesses of the learner supplies information that can lead to the alteration or adjustment of methods and curricular offerings. Existing courses of study must be flexible enough to permit the creative educator to help meet the needs emphasized through the diagnosis of weakness and to assist in reinforcing the strengths of individuals.

Feelings of competency are necessary for success. Guidance in successful performance is needed to obviate the sense of frustration and personal inadequacy found in those individuals who have repeated failures.

Continued development and adjustment for the individual must take place within the group setting. There should be recognition of the need for group membership and feelings of belonging. It is important that every learning situation include opportunities for study concerned with regard for the rights and concepts of others, as well as work with different personalities. Skill in group discussion and problem solution is a desirable means to total development. Effective group activity promotes attitudes of responsible citizenship and recognition of action for the common good. Classroom experiences must be so planned and developed that group membership and understanding and acceptance of others result. A friendly atmosphere in the school encourages desirable interpersonal and group relationships.

Educational leadership must offer a variety of opportunities for the enjoyment of creative talents and esthetic values. Exposing individuals to the marvels of nature and to the fine arts is effective in developing appreciation and sensitivity. Any activity which carries with it the concept of good work, of giving a sense of satisfaction, of representing an ideal, can have esthetic value. Pride in accomplishment, in the quality of a piece of

work, in anything considered beautiful, may provide esthetic enjoyment. There should be greater efforts toward the building of interests. These should be presented so that individuals will be confronted with such opportunities within the educational activity.

In the final analysis, concern should be for the welfare of the whole individual in a setting of desirable interrelationships. Self-direction is a basis for discovering guides for a desirable life. Fullness of living can best be accomplished when the individual has the opportunity to seek, explore, and experiment to the end that improvement in living occurs. This must invariably be in wholesome relationships with others.

CHAPTER 2

Modern Educational Philosophy Applied—Health, Physical, and Recreation Education

IMPLICATIONS OF EDUCATIONAL PHILOSOPHY FOR SPECIALIZED EDUCATION

Interpretations and Objectives

A critical evaluation of the aims and objectives of health, physical, and recreation education is desirable in order to determine what contributions can be made toward a fuller realization of democratic living, toward better international understanding and cooperation, and toward effective solution of social problems. Specialized education for the individual in order to provide his adjustment to society should be directed in terms of growth and development, survival and adjustment, in relation to the needs that exist in society.

Health, physical, and recreation education can make significant contributions to more effective living. Carefully planned activity programs aid in achieving efficient growth and development; effective survival may result from the solution of personal and community health problems and acquiring skills for positive social participation; desirable adjustment may be brought about through leisure-time pursuits, camping and nature study experiences, and arts and crafts activities.

In order that individuals may provide for solutions to social problems certain knowledges and understandings must be present. The specialized areas of health, physical, and recreation education are in a strategic position to provide experiences that will enhance problem solution and give considerable emphasis to program aspects dealing with knowledge, understanding, and respect for culture and human values. These experiences should concern one's own and other cultures; people, their traditions, customs and attitudes; social institutions and their needs; respect for human values and ways of living; and interdependence of different

people. Furthermore, redirection of existing programs is needed to promote situations and activities that have implication for the solution of certain social problems such as delinquency, divorce, and inter-racial and inter-religious concepts.

Major importance can be claimed for the values inherent in the international understanding and cooperation phases of health, physical, and recreation education programs. One unique factor is the understanding engendered by international sports participation in the Olympics. Such opportunities for the exchange of ideals, cultures, and attitudes are not available elsewhere. International field days, school demonstrations, and the exchange of students and faculty give further impetus to a more rapid recognition of the worth of other lands and people. Displaying arts and crafts of various countries in relation to athletics, sports, and other recreational activities is another method of developing understanding. Knowledge of activities characteristic of other lands (such as gymnastics in the Scandinavian countries, national health insurance in England, and co-operatives in Sweden) are also valuable.

As in general education, the specialized areas must develop curricula which are based upon needs, interests, and aptitudes of the students. It is through diversification of such curricular experiences that every student is given learning opportunities. To accomplish that objective, it will be necessary for frequent surveys and analyses to be made. These surveys can serve to determine the educational needs of students, to suggest the full use of community resources, and to provide understandings of society. In health, physical, and recreation education the curriculum must be constructed to provide breadth and depth to the meanings of democratic ideals, international understanding, desirable living, and social contributions. Provisions for growth and development, adjustment and survival of the individual, will tend to insure that the individual will be better prepared to take his place more effectively in a complex society.

In order to obtain optimum returns from the students participating in the experiences of the specialized areas, it is important that the potential goals of health, physical, and recreation education be considered in relation to the total setting of general education. The ultimate achievement then can be only a well-rounded development of the total individual and not just a competency in the specialized areas. This suggests that the objectives for such education must be identified for and interpreted to the students so that the roles of the individual and society are clear. Opportunities for guidance and counseling, if provided, can do much to assist in the fulfillment of the aims of the specialized areas and to give recognition to the individual regardless of race, religion, socio-economic status, national origin, or sex. The assumption given here is that students should not be denied the right of experiences in health, physical, and recreation education.

Community Organizations and Auspices

The goals of health, physical, and recreation education for fuller realization of democratic living, education for international understanding and cooperation, education for the solution of social and economic problems, and education for more effective living have important implications for community organizations. New organizations must be developed and existing agencies reorganized in order to meet the needs expressed by the goals. All agency impacts must be integrated so that they will be brought to focus not only on the needs of the individual, but also on the needs of society at the local, state, national, and international levels. It is desirable, therefore, that health, physical and recreation education coordinate activities with those of the community organizations.

Experiences for students in the specialized areas must be concerned with close community-agency interrelationships. Through such activities, knowledges and attitudes can be developed that will aid in constructive changes of community conditions that are not in keeping with democratic principles or accepted standards of society.

The preparation of individuals for leadership in various community agencies is a prime responsibility of the specialized areas. Training of leaders can be effective only if persons selected for such responsibility have a sympathetic and intelligent understanding of people. Furthermore, a clear concept of the role that social agencies have in society is necessary if leaders are to make the most effective use of agency facilities and programs.

The specialized areas of health, physical, and recreation education assume their responsibilities in the most desirable manner through cooperative endeavor with various community agencies. Active affiliation of staff members with local, state, national, and international allied organizations is one means of accomplishing optimum results. Through such coordination, education of community members as to the values of health, physical, and recreation education can take place, and approval and support can be readily solicited. When effective leadership is made available and desirable coordination and integration of activities and facilities take place, then the community organizations will become real laboratories in social engineering, yielding solutions to inter-race and inter-faith problems.

People—Status, Educability, and Capacity

Determination of the characteristics of people must be established in relation to the physical, mental, emotional, and social needs of the individual and society for democratic living. Current philosophies of education will give clues to the direction that general education is taking so that the specialized areas can keep pace and evaluate the individual's needs as they do so. Since the individual is important as the basis for the

group, classification of the person in terms of his capacities, aptitudes, and his role in society is necessary. Activities will offer optimum growth experiences if they meet the common needs of the group and provide for specific needs of the individual in relation to such categories as sex, age, physical capacity, ability, and educability. The staff in health, physical, and recreation education must be skilled in the use of evaluative tools and be aware of new developments and trends in general education as well as in the specialized areas to be in a position to make the highest contributions to the individual and society. Latest research findings can be more readily utilized, if applicable, when staff members keep abreast of new concepts. A prime responsibility of the institutions in health, physical, and recreation education is to carry out self-evaluation and critical analyses of their staff, programs, and students so that constant readjustment can be made for improvement of personnel, programs, and facilities. Changing demands and trends in general as well as specialized education point up the necessity for regular program evaluation. A sound and continuous evaluative process in health, physical, and recreation education considers the degree to which objectives are being attained; the efficiency of the learning in the achievement of the objectives; the adjustments necessary to enhance learning opportunities; the inclusion of experiences to provide for more diversity and compatibility. Thus, measurements must show a relationship between objectives and activities.

The evaluation is worthless if results are obtained and not utilized. In the evaluation of the individual, the data have a direct bearing upon his knowledges, attitudes, and behavior. All the factors emanating from a measurement and evaluation program, if brought to focus on the individual, can be worthwhile if that individual is guided in providing for his needs and wants, and is encouraged to further achievement.

Programs

Through the programs of health, physical, and recreation education, opportunities are provided for controlled participation in wholesome and interesting activities. To insure that these are educative experiences, programs must be geared to meet individual as well as group needs. Furthermore, activities resulting in intellectual stimulation and growth, physical exercise and relaxation, emotional expression and satisfaction to human impulses, and social belonging are to be selected and utilized. The importance of maintaining stability and flexibility within the program is apparent. Stability of the activities is concerned with those experiences that promote total growth and development and that relate to the larger objectives of fullness of life. Adjusting and changing with desirable new trends and factors emphasize flexibility. The latter concept is dynamic; the former, static. As society is constantly evolving, so are program activities. The necessity for continuous re-evaluation and new

selection of activities in light of program functions and objectives can be justified.

Extension of the programs in health, physical and recreation education to consider opportunities for meeting the objectives of general education is one means of establishing the worth of the specialized areas. This is based on the premise that harmonious interrelationship exists between special and general education. Where this is not the case, adjustment in program content or redirection of goals may bring the two areas into focus. Ideally, the program activities in health, physical, and recreation education reinforce and re-emphasize the path toward goal attainment. When such pathways are in terms of experiences, interests, needs, and capabilities of the individual, the direction is sure and the goals are readily reached. The need for satisfying demands in the setting of social realities cannot be overlooked, for it is within the social environment that effective achievement takes place in health, physical, and recreation education. One way of insuring proper guidance is by student participation in program planning. Through such means, individuals may express their needs, likes or dislikes, and desires. Furthermore, participation in program planning is more likely to provide increased program participation and subsequent goal attainment by the individual. Pride of ownership accompanying the taking part in planning is a powerful motivating device and is usually accompanied by prompt, positive action.

Leadership

The development of leadership capacities of each individual is a major responsibility of the specialized areas of health, physical, and recreation education. Leadership training must take place at every opportunity. Selection and guidance of those students with potential leadership ability can be readily carried out by the specialized areas. Curriculums and programs offer occasions for all students to lead as guiding forces within their participating groups. Inspiration and stimulation are a natural outcome of this participation so that professional extension to capacity in the agency or community follows. In addition to pre-service training, in-service experiences enhance leadership attributes. Emphasis during the training must embrace a scientific approach to materials and methods in the special field, suitable knowledge, desirable attitudes, and effective behavior.

The staff of the institutions assisting in leadership development can do an effective job if the members have the attributes of leaders and can identify and counsel the potential leaders in their groups. A clear concept of the role of the specialized fields at all community levels is needed, as well as the ability to communicate, exchange, and interpret ideas in health, physical, and recreation education for better understanding by people. The assumption of leadership in community projects

which need interpretation and support is rightfully the responsibility of such staff members.

Good leadership requires an understanding of the basic functions of the specialized areas. It suggests that there is consideration of needs and wants of those being instructed, and that activities are selected and adapted in line with those needs. Organization of activities in terms of the needs and provision of suitable protective measures are also important facets of effective leadership. Finally, constant measurement and evaluation of the product and the process permit more progressive planning for leadership.

There are numerous means through which leaders in the specialized areas can approach the goals of democratic experience, international understanding, solution of social problems, and more complete living. An effective way is the planned participation of potential leaders in activities designed to develop their full capacities in skills, attitudes, and knowledges. The use of activities to inculcate better behavior patterns based on democratic principles is another method. A more direct approach is through such procedures as the use of foreign folk games, dances, and sports. This could readily be followed by intervisitation among groups from various countries. When the solution of individual and community social problems is carried out in light of the objectives of the specialized areas, this represents an additional technique. The reader can cite many other examples of procedure for achievement of goals through leadership.

Administration

Administrators are charged with the responsibility of perceiving the broad implications of health, physical, and recreation education as specialized areas within total education. The philosophy of administration should therefore be rooted in the growth, adjustment, and survival needs of individuals and society and placed in a democratic setting. One of the means for accomplishing this is by organizing toward a better understanding of the democratic process. When students and staff operate in an aura of practical democracy and world citizenship, and when they accept their social responsibility, administration has gained a forward step in its procedures. Yet this step is not complete until it is recognized that the specialized areas are built around the individual student, his needs, potentialities, capacities, and growth. The manner in which experiences are related to the individual will determine, in a large measure, his adjustment and contribution to the society of which he is a member.

To achieve a balance between specialized and general education, the administrator must secure a basic type of education which will help him prepare the individual for his chosen work. The program selected needs

to be so arranged as to promote maximum efficiency, diversification, and equality of learning opportunity for every person. To do this, staff members of the highest calibre will be needed. In addition, an effective program can be carried out administratively if adequate staff, facilities, and equipment are provided. The changing nature of society makes it imperative for administrators to evaluate constantly and revise the specialized areas and their programs in light of outcomes and in keeping with the broad goals of education. If the responsibilities of administration in health, physical, and recreation education are to integrate program objectives, activities, and materials, to make adequate provision for the program, and to furnish effective management toward the realization of the objectives, emphasis must be given to a setting which permits academic freedom and the opportunity to use the creative talents of staff and students.

Professions

As the professional areas of health, physical, and recreation education continue to grow in stature and membership, it becomes increasingly important that their functions and aims be coordinated to strengthen progress toward the fulfillment of high professional standards. This does not necessarily imply a merger of areas. Strength can be supplied through cooperative planning and joint effort. Yet, as each area gets stronger and tends to lose the desire to work with allied areas, vested interests begin to manifest themselves. Slowly this process is taking place. Can it be assumed that each area is prepared to stand by itself? Can each special field be strengthened by a cooperative bond with other areas? These and many similar questions are plaguing the professional areas today. In any situation, either seeking individualization or the other extreme of merging, coordination of planning and action is essential.

Since education is an effective tool for social progress, professional education has no choice but to keep pace with the requirements of a changing and expanding culture. Setting high standards for qualifications and for direction in achieving social progress is the obligation of the professional areas of health, physical, and recreation education. Recruitment and guidance of a high quality will have to be mandatory to assure the professional areas of qualified students and staff. To hold the best persons in the profession, security and creative opportunities must be offered. Since the democratic setting for professional development is to be present, and the goals defined so as to permit professional workers to practice democratic behavior, there must be no discrimination in the recruitment and selection of students and staff for the job to be done. In health, physical, and recreation education, where there are opportunities for achieving high standards of professional ethics, intergroup relationships, and self-improvement and advancement, as

well as the chance to use creative talents fully, there can be ready adherence to democratic principles and ideals.

A profession is only as effective as its members. When activities within the professional organizations are largely in the control of a retiring age group, it becomes increasingly necessary to give younger members organizational responsibility. This can be accomplished by a reorganization of the professional area, by instituting a true democratic process in its actions, and by selecting those who desire to make professional contributions and who have not been given the opportunity. This challenge can be met if the areas of health, physical, and recreation education are so organized that all potential and existing members clearly understand their professional and civic responsibilities and are prepared to give unstintingly of their time and energy.

IMPLEMENTATION OF EDUCATIONAL PHILOSOPHY FOR SPECIALIZED EDUCATION

The modern educational philosophy of health, physical, and recreation education is in keeping with that of general education. As with general education, steps must be taken to gain understanding and support of the special areas. Improvement of professional status and program contributions can be accomplished through such processes as conferences, legislation, individual and institutional initiative, research, funds, accreditation, certification, and political support. Public relations is a most powerful force in disseminating information and in achieving recognition for programs and services. Some of the procedures for implementation follow.

Conferences

Professional conferences, meetings, seminars, and discussions are designed to review periodically the status of the special areas and to strengthen their position with respect to general education. Improved evaluation, selection, and adaptation of philosophy and policies to reach the goals of health, physical, and recreation education is another aim of such conferences. It is necessary that the formulation of philosophies and policies be suited to individual and group needs if full effects of the special areas are to be achieved. Meetings at the state level are more apt to relate to local needs, but those at the national level can provide for broad generalizations within which adaptation to the local situation can readily take place.

In addition to conferences of professional persons in the specialized areas, coordinating meetings of those representing various agencies, organizations, and institutions in health, physical, and recreation educa-

tion need to be held. When possible, such conferences should include students and potential professional workers. All interested and concerned agencies should be represented at these conferences, and continued interaction between professional and lay persons must take place to establish, revise, or put in practice the policies of the specialized areas. At the local level, conferences among boards of education, school administrators, staffs, students, agencies, trustees, political groups, and community leaders will do much to implement the philosophies of health, physical, and recreation education.

Legislation

Active promotion and support of legislation to make possible the achievement of the goals of specialized education is an important responsibility of those in health, physical, and recreation education. Since financing and economics affect education, it is necessary that every advantage be taken to promulgate into law policies of financing that will promote the special fields. Efforts should be directed to having funds for local use available from the federal government, through the state legislative bodies. In this way, local needs can be met more adequately. Existing legislation should be modified and new legislation be so stated as to make application in terms of local problems possible. It is through the state governments that this adjustment can take place; therefore, it is implied that state legislation should not only point up the current educational philosophies at the local level but should maintain protection of teachers and students through adequate facilities and reasonable security in the community. Thus, it can be observed that local legislation will implement state laws, which in turn will lend support to federal legislation.

Individual and Institutional Initiative

The individual who is interested in, and concerned with, health, physical, and recreation education can assist in achieving the goals explained by the philosophy of the special areas. Keeping informed about and participating in professional organizational activities are ways of assisting. Improvement in background and training places the individual in a strategic position to carry out the philosophical concepts of special education. In the development and reconstruction of the curriculum, positive contributions of individuals will enhance specialized experiences. By volunteering their services and talents to committees, projects, or organizations which will improve the specialized areas, by assuming responsibility for research, and by studying and writing in professional areas, individual staff members and students, where possible, can make positive contributions to health, physical, and recreation education.

Agencies, organizations, and institutions can also provide invaluable aid in implementing the policies and philosophies of health, physical and recreation education. One of the most effective ways for such implementation is for the institution to maintain the highest possible standards of leadership and program. To achieve the objectives of the specialized areas, it is necessary that all resources of the organizations be made available at federal, state, and local levels. Continued experimentation and research must be utilized if optimum contributions are to be made. This becomes more of a necessity when funds are not available for additional facilities and staff, and readjustment of the curriculum in light of existing factors must be resorted to in order to carry out the philosophies of the special areas.

Institutions in health, physical, and recreation education can assume leadership in developing and encouraging the use of projects related to educational philosophies and objectives. Clinics, workshops, in-service training, and evaluation of activities are some of the procedures that institutions can utilize. Additional processes involve the provision of security for its members through such factors as adequate personnel policies, salaries, and health and insurance benefits. Encouraging and assisting staff members to participate in local, state, and national affairs are other means of stimulating individual and institutional initiative. Those institutions that provide high standards, evaluate periodically in terms of trends and needs, and offer means of adequate communication among their staff members and the administration, stimulate the maximum contributions by these members. To provide strength and direction for institutional initiative, cooperative endeavor is desirable. Where institutions have pooled efforts, staff, and facilities in the implementation of philosophies and policies of specialized education, effective results have occurred.

Research

The assumption of responsibility for implementation through research is found at the local, state, and national levels. Such research should enrich the knowledge of those in the specialized areas and should yield results which, when applied, will improve the values of health, physical, and recreation education. Although primary emphasis can be given to the use of qualified staff personnel in research, the potential values of training students in research cannot be overlooked. Students, therefore, should be included in any research projects.

Since funds are basic for initiating and carrying out research, federal and state agencies should be charged with the responsibility for supplying those funds. At the local level, funds for research can be sought from interested and concerned individuals and agencies.

Funds

The financing of public and private institutions of higher education is the responsibility of the public finance agencies concerned with education. Adequate funds to carry out the philosophies of general and special education should be guaranteed, but the allocation of such funds at all levels should not influence educational philosophy or procedure. Equality of educational opportunity consistent with democratic ideals can be present only if financial aid is provided for health, physical, and recreation education without controls or limitations. As such support is forthcoming, staff members will be in a position to make use of the increased facilities and program to the end of the improved individual and society. Although funds provided for staff and facilities tend to improve educational procedures, the necessity for financial grants to qualified students must not be ignored. The allocation of monies for local educational purposes is through the state governments, supplemented by federal government funds when certain types of activities or programs are to be subsidized. There is need for greater support from the national government for such educational experiences which are in harmony with the philosophies of general and special education.

Private agencies constitute a desirable source of contributions, and local organizations can and should seek and accept such contributions. Institutions of higher learning should also procure the approval and cooperation of private agencies as a means of support. Increased donations from private donors for scholarships and fellowships can enhance opportunities for educational development. Such funds must not be encumbered and should be made available to students regardless of special qualifications except those of sincerity, interest, and capacity for learning.

Accreditation and Certification

Established standards of accreditation tend to insure staff, facilities, and practices that will enable institutions of higher learning to make more desirable contributions in health, physical, and recreation education. Minimum requirements for accreditation can be defined by an agency designated by the institutions to act in that capacity. These minimum requirements will be valuable if they are national in scope, flexible enough to allow for adjustment based on individual institutional needs, and standardized so that students will not be penalized because of variation in accreditation practices. Accreditation is necessary in order that the guides or criteria presented may serve for the self-evaluation of an institution's staff, facilities and procedures.

The certification of qualified persons for teaching or leadership in the specialized areas is the responsibility of state departments of education. If certification standards are set at the state level, uniformity of require-

ments will be state-wide with opportunity provided for the adjustment of those requirements to meet local needs. Under no circumstances should local requirements be lower than the minimums for certification of the state in which that community is located.

Political Support

Gaining the support of political groups for carrying out the educational philosophy of the special areas is the responsibility of workers in those fields. Three ways of accomplishing desirable action are: supporting those parties or individuals interested in education and sympathetic with its philosophies; interesting citizen's groups outside of professional education to organize and support the specialized areas and their philosophy and to act as positive pressure groups; and promoting a constant awareness among political leaders of the role of specialized education. Affiliation of personnel with political organizations should be in terms of the individual's responsibility for working actively toward the improvement of health, physical, and recreation education.

Political viewpoints which are contrary to the attainment of goals and the democratic way of life should not be permitted to influence the special areas. The goals of general and special education should be held more important than those goals of political entities which are not generally in keeping with modern educational philosophy.

Public Relations

Public relations should be organized to promote and maintain cooperative relationship among the specialized areas, community organizations, institutions, individuals, and governmental agencies at the local, state, and national level. Printed material, posters, exhibits, radio, television, press, demonstrations, and forums should be utilized as promotional efforts to the fullest extent to bring about better understanding of the purposes, goals, and needs of the specialized areas.

The dissemination of information has a twofold purpose: to supply data for professional workers in the special fields, and to serve as a public relations technique. Federal agencies can best serve by gathering, evaluating, and distributing information of the special areas concerning philosophy, objectives, community organizations, people, programs, leadership, administration, trends, and professions; state and local agencies can distribute existing materials to those interested in the educative process in order that they may better understand and implement the philosophy of health, physical, and recreation education.

PART II

A SYSTEMATIC ANALYSIS FOR THE IDENTIFICATION OF PROBLEMS

Preface to Part II

With the basis for problem identification and solution established (Part I), it is necessary to determine the procedures that should be used to identify the problems existing in health, physical, and recreation education. In attempting to determine the problems that hinder effective operation of these special fields, one must follow steps which have been scientifically tested for both theoretical and operational validity. Each of the four steps follow in successive chapters, and the need for each step is presented here.

1. *Functions of health, physical, and recreation education.* The problems that exist cannot be known until the nature and scope (functions or duties) of health, physical, and recreation education are established. These functions or duties serve as a check list or framework which starts the systematic process. If a function is omitted from this framework, the problems related to that function will not be identified.

The outline method is used to present the functions. In this connection completeness of the framework of functions is claimed for the nine organizational categories (interpretations, objectives, etc.). For most categories, completeness will be found in the second subdivision of functions, and in some, the third subdivision. Further delineation was found unnecessary as the authors have assumed a broad over-all view of these fields

and concern in this analysis is not reflected in the minor or subordinate functions. The major problems must first be solved in order that the nature and form of the minor problems may be known.

Chapter 3 considers the process of problem identification. If it is desired to identify the minor problems, further delineation of the functions is necessary. The superior headings will indicate the nature of the function to be delineated. For example, the section dealing with basic influences will include the legislative influence; the legislative will include the international, etc.; the international will include civil, military, etc. This framework may have an application to a local, state, national, or international setting. Whatever the starting point, the problems will be identified only according to this reference. For a full view of the potentialities of these fields, it is recommended that no delimitation be placed on application. Education needs to solve world problems.

2. *Operational principles for the performance of duties in health, physical, and recreation education.* When identifying problems in health, physical, and recreation education, a basis for establishing the magnitude of the problems is needed. Operational principles serve as a reference on "what ought to be" the educational practice. The difference between "what is" and "what ought to be" will indicate the problem magnitude. The framework established for functions (Chapter 3) represents the framework for the derivation of principles. As in the case of functions, the presentation of principles includes only those for the major functions; minor delineations are not included. If references for minor problems are desired, they may be obtained by deductive analysis of all superior principles and reference to the literature.

The derivation of the operational principle represents what the authors believe to be the desirable directions and conduct of health, physical, and recreation education. An understanding of those principles should be a part of the knowledge of all professional workers in order that valued judgments may be made in both professional practices and in the conduct of problem-solving activity for improvement of practices.

3. *Current practices in health, physical, and recreation education.* In addition to a reference on "what ought to be" the professional practices in health, physical, and recreation education, it is also necessary to have a reference on "what are" the current practices in order to identify problems according to the realistic educational philosophy expressed in this text (Part I). The framework on functions (Chapter 3) serves for statements on practices. The practices of the highest level (major categories) are presented and minor subdivisions are omitted. Those interested in having a more detailed reference for problem identification may further develop the practices under the superior statements of practice. Deductive analysis of these statements will aid in this analysis as the direction of practice is reflected in the statements. Additional reading

in current periodical literature must supplement this analysis in order that the specific nature of the practice may be known.

4. *Major problems in health, physical, and recreation education.* With the functions of health, physical, and recreation education known and established, and with the upper (what ought to be) and lower (what is) references determined, it is possible to identify the problems in these special fields of education. The problems may be determined in order of magnitude, although standards for each principle are needed to establish the magnitude fully. In most instances, standards on a quantitative presentation of the principle are not indicated. For a higher level of scientific accuracy, standards may be developed by reference to the periodical literature and, in the absence of standards, the personal judgment of the professional worker may be used. Problems may be identified on the qualitative basis by simply matching the principles and practices without concern about magnitude. A philosophy supporting such activity is that all problems which exist need to be solved regardless of magnitude. For the identification of problems in detail, further subdivisions of functions, operational principles, and current practices are needed; however, the many major problems represent professional activity on problem solving of first priority. The nature of minor problems is not known until the solutions of the major problems are available or interpreted.

CHAPTER 3

Functions—Duties Constituting Health, Physical, and Recreation Education

The basic premise underlying the operation of any profession is revealed by studying the functions which are performed by the profession. These functions have been well stated for most professions such as medicine, law, engineering, and social work, and in 1926 Clark W. Hetherington¹ outlined nine basic functions involved in the conduct of physical education. These nine functions apply equally well to health and recreation education. With certain modifications in terminology these nine functions are:

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|---|-----------------------|
| 1. Interpretations (philosophy) | 5. Programs |
| 2. Objectives | 6. Leadership |
| 3. Community organizations and auspices | 7. Administration |
| 4. People—status, educability, and capacity | 8. History and trends |
| | 9. Professions |

Figure 1 illustrates the interrelationship of these functions. It should be noted that there is a logical progression from the function of interpretation to the professional function. This should always be kept in mind; too often people are concerned with the administration of a program before establishing goals.

Interpretations or philosophy give direction and the *objectives* indicate goals to be achieved. The *community organizations and auspices* provide the setting or environment for the accomplishment of the objectives. Naturally a profession must work with *people* through some *program* which requires *leadership* and *administration*. A review of *history and trends* indicates prior accomplishment, and, finally, the *profession* emerges to lend dignity, stability, and strength to the group of people engaged in this professional enterprise.

Everything and anything that is involved in the execution of the func-

¹ Hetherington, Clark W., *The Problems of Physical Education*. School of Education, New York University: Unpublished Materials, 1926.

tions of health, physical, and recreation education will fall into one of the nine functions. For purposes of illustration the following typical professional activities in health, physical, and recreation education are cited along with the category in which they would probably be listed.

<i>Activity</i>	<i>Category</i>
achievement testing	people—status, educability, and capacity
planning activities	programs
YMCA or school	community organizations and auspices
selection of leaders	leadership
describing the purposes of education to parents	interpretations
establishing goals	objectives
planning facilities	administration
studying past events	history and trends
professional conferences	professions

Those interested and those actively working in health, physical, and recreation education must thoroughly understand the character of these functions. They constitute the basis for understanding the profession and serve as a statement of requirements of the various duties that must be performed by professional personnel to achieve the goals of the profession. In order to further amplify the significance of the nine functions, they have been delineated.

No attempt has been made to present a complete analysis of each function. The classification of functions, however, is considered to be com-

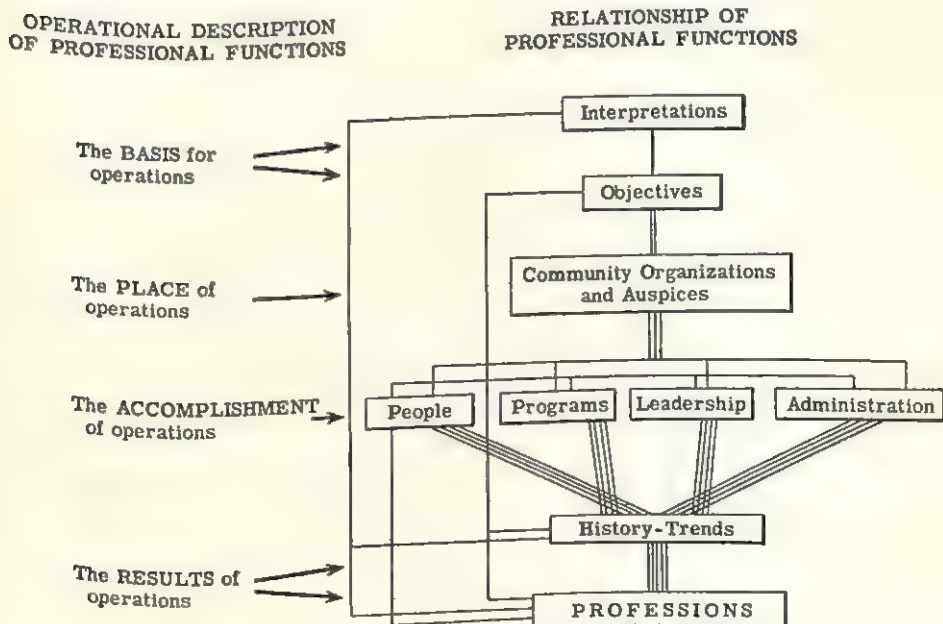


FIGURE 1. Professional Functions and Their Interrelationships.

plete in the first order of division (nine functions), and in most instances through the second and third order of subdivision (e.g., the educational function for the program functions is subdivided into the selection of activities, evaluation of activities and adaptation of activities, and these are further subdivided into the third order of functions). For the purpose of establishing a reference for the systematic study of health, physical, and recreation education, subdivision of functions beyond the third order of detail is not needed. An established reference of major functions will lead to a coordination of the major problems that need to be solved before successful work may be performed in those fields. Further subdivision is needed only when the details of each professional function are desired. This can be easily accomplished because the subdivisions are delineated to a point where the nature of the professional function has been established. The development of detail functions remains; such detail, however, is not needed for the systematic identification of major problems.

INTERPRETATIONS

Man requires something to guide his thought, to give him direction. Philosophy is, in a sense, a study or search for truth. Philosophy deals with life; thus the function of interpretation which we are concerned about in this section is really philosophy. Philosophy is basic to understanding; as Durant puts it when comparing science with philosophy, "Science is analytical description, philosophy is synthetic interpretation."¹

To be consistent in one's thoughts one must have a sound philosophy. Philosophy generally includes five fields of study: logic, ethics, esthetics, politics, and metaphysics. These fields are quite well known to the student; however, for purpose of clarity they are interpreted as follows: *Logic* deals with *methods of thought*; *ethics* deals with *conduct*; *esthetics* is concerned with *beauty*; *politics* deals with *social organization*; and *metaphysics*, as Durant states, is "the study of the ultimate reality of all things: of the real and final nature of 'matter' (ontology), of 'mind' (philosophical psychology), and of the interpretation of 'mind' and 'matter,' in the processes of perception and knowledge (epistemology)."²

Philosophy attempts to interpret life, to explain the real meaning of life, through a philosophical concept of the *Universe*, *Society*, and the *Individual*.

There are three logical steps that should be followed in the pursuit of a true interpretation of our professions: first, a review of the contemporary philosophies of life; second, a look at educational philosophy,

¹ Durant, Will, *The Story of Philosophy*. Garden City: Garden City Publishing Co., 1938, p. 3.

² Ibid., p. 4.

particularly as it can be identified with contemporary philosophy; third, the application of this philosophical thought to the specialized fields of health, physical, and recreation education.

There have been many attempts to classify contemporary philosophies. The three most fundamental schools of thought suggested by leading philosophers are idealism, realism, and pragmatism. These should be thoroughly understood. Few people exhibit complete tendencies in any one direction. It is true, however, that most people tend to lean toward one of the schools of thought. Many people have the habit of changing according to the occasion. For example, when considering health, a person might be governed by concepts of realism, yet concerning politics, he might hold a pragmatic viewpoint.

It is desirable to develop the function of interpretation more completely than has been presented. As a guide to further study of interpretations, the divisions described above are further delineated.

Philosophies Influencing Contemporary Life

Idealism. In idealism, mind and spiritual self are considered centered and independent of material relationships. In other words, all that exists, exists in the mind. The principles of reason and purpose are ever present in the mind. The mind and self are central; material things are secondary.

Realism. This philosophy is predicated on the theory that material things exist independently of the mind or spiritual concepts. Realism is the philosophical correlate of science; it directly opposes idealism.

Pragmatism. This philosophy advances the belief that if a thing works it is good. In other words, it is that school of thought which encourages man to emphasize anything that is practical, efficient, and satisfying. It is an approach to truth through action. Present problems are important; problems of tomorrow will bring their own solutions.

Implications for General Education of the Basic Philosophies Influencing Contemporary Life

Idealism. Emphasis in education is on the mind and spiritual values of the individual.

1. Interpretations. In planning educational programs, the mind and self are central, the material aspects of education are secondary.

2. Objectives. The objectives are self-realization of the individual to free him of self-consciousness. Full knowledge and control of self are major objectives.

3. Community organizations. Institutions are organized according to the potentials of the individual. The development of vigorous personalities of the student, teacher, and parent in all relationships is of major concern. Scientific planning is of secondary concern.

4. People. Knowledge of the mental and personality powers and po-

tentialities of the individual are of major concern. The questioning, the explaining, the discussion, are important in the development of the mind and personality. Mere knowledge, for the sake of knowledge, is of minor value.

5. Programs. The program emphasis is on mental and personality development of the individual. Little consideration is given to program materials. Any subject that provides opportunities for the development of the creative self is considered proper.

6. Leadership. The idealist leader helps his pupil develop to his potential. He guides, but he does not direct. He helps individuals develop by seeing that the solution to every problem demands an effort on the part of the individual to think and reason for himself.

7. Administration. The administrator uses his powers to insure each member's self-development to the highest level. He sees to it that the school or institution helps those who are helping themselves.

8. History and trends. The modern idealist believes that the pathways to human development are indefinite in number, and that any avenue of experience may lead to self-development and adjustment. All subjects of study are essentially and fundamentally arts in which the self is genuinely creative.

9. Professions. Professional preparation and leadership are designed to recognize the needs of the pupil, to give him opportunities for more mature experiences, and to help him attain insight. Any method that achieves this goal is acceptable.

Realism. Emphasis in education is on the material world which has existence and is independent of the mind.

1. Interpretations. Education places emphasis on the material world, and scientific method and procedures are used to understand it.

2. Objectives. The individual is considered to be a biological being that is in constant action and reaction with the physical world. The objective is to make the individual more amenable to the forces of the physical environment.

3. Community organizations. As a result of experimentation, everything is systematized in smooth-working organizations.

4. People. An objective view is taken of the individual. Achievement of knowledge is important, and examinations and demonstrations are a part of the educational program. The subjective phases of education are not looked upon with favor.

5. Programs. Importance is placed upon the program and upon the selection of the "right" subjects. Development of the individual is considered a scientific matter, and the individual is subjected to tests and examinations to determine the most effective methods of achieving results.

6. Leadership. The realist leader believes that service is the way to

truth and life. His aim is to be the voice of service and to be systematic and entirely impersonal. He adapts his methods and motives to the interests and characteristics of the pupil.

7. Administration. This consists roughly of organizing material and organizing and leading men and women. The administrator has an almost religious regard for the methods and results of science and their application in education. All his decisions are influenced by impersonal results of experimentation.

8. History and trends. The realist views history and trends in an entirely objective manner. The facts are gathered and interpreted, and anything that is not factual knowledge is discounted.

9. Professions. The teacher is an impersonal channel of communication. Teaching consists largely of those who know telling those who do not know. The teacher is the translator. The facts speak for themselves.

Pragmatism. Emphasis in education is on the practical sequences.

1. Interpretations. The directions for education that have been used and found acceptable are considered valid.

2. Objectives. To fit the individual for modern industrial activity, emphasis is placed on objectives that will enable him to solve current problems according to the best scientific procedures available. All resources are used in problem solving.

3. Community organizations. The demands of the public become the basis for the establishment of organizations and institutions. This may lead to duplication, but if the public is satisfied, the need has been met.

4. People. Knowledge of the individual concerns the ability to solve problems by utilizing all available resources. Success in education is determined by problem-solving ability. Each problem is considered to have a certain uniqueness—but if the individual's education is successful, he should be able to establish a solution.

5. Programs. Subject matter is used for the preparation of the individual in techniques and procedures for problem solving. Emphasis is on how to use books for problem solving rather than for the sake of gaining knowledge. Educational programs are justified on the basis of practicability.

6. Leadership. The leader is essentially an experimentalist, solving problems as they arise. He adapts himself to each situation by utilizing his resources to find the most acceptable solution. His objectives are to teach people to do, rather than to know, and to discover for themselves, rather than to repeat other's systems of problem solving.

7. Administration. The administrator has no generalized theory of what the school or institution should or should not do. He is there to solve problems as they arise; he is an opportunist who wishes to do the best he can for his institution, his teachers, and his pupils.

8. History and trends. The pragmatist is interested in materials with

a future rather than materials or subjects with a past. Unless the material has current usefulness, the pragmatist is not interested. He is concerned only with the success of past experiences and whether or not the materials and techniques still apply to problem solving today.

9. Professions. The teaching of practical knowledge is of little concern to the pragmatist; his chief emphasis is on the use that can be made of knowledge in problem solving. His viewpoint is entirely empirical and he refuses to look beyond the immediate future for which he is planning. He uses trial and error, although he prefers tested methods and procedures. When something is found that works, he looks no further.

Implications for Health, Physical, and Recreation Education

Idealism. Emphasis is on the mind and spiritual values of the individual. Physical development, unless it meets these values, is of little significance.

1. Interpretations. Health, physical, and recreation education are considered as tools for personality development of the individual. Their use should yield a better thinking and reasoning individual. Skill, for skill's sake, is of no consequence.

2. Objectives. Emphasis is on the development of wholesome attitudes and health conditions for full realization of self and control, including the care of the body and healthful living for personal and social betterment. Material phases of the special activities are of little worth except as tools for better mental and social development and adjustment.

3. Community organizations. Organizations are established for the purpose of developing the full personalities of people. The purposes of organizations remain constant if the programs meet objectives. Facilities and materials are not used in a scientific manner. The organizations are not designed to meet life situations by contributions through and in health, physical, and recreation education.

4. People. Knowledge of the individual is desired only as it helps him achieve full realization and control of self. Evaluation of programs is on the basis of their contribution to individual development of the mind and self. This includes attitudes, satisfactions, and personal adjustments in particular.

5. Programs. Materials that help lead to social and mental development and adjustment are selected with emphasis on the individual rather than on the materials. Physical skills, unless they are used for self-realization, are not considered necessary by the idealist. Healthful living and skills are important for more effective adjustment of self.

6. Leadership. The leader is a well-adjusted individual, skillful in his leadership as a guide rather than a director. His interest centers on the individual rather than on materials. He uses the materials of health,

physical, and recreation education as aids in personality development rather than as ends of education.

7. Administration. For optimum individual personality development, administration is self-directed. Policies are relatively constant; they do not change from era to era or from individual to individual.

8. History and trends. Improved techniques of specialized education are used for the development of a better individual. The materials, however, tend to remain constant and the nature of the individual product, as a mental and social being, also remains with little change from period to period.

9. Professions. Education emphasizes the study of logic. Specialized personnel need a deeper insight into the individual and his relation to the full realization of all his powers. A basic preparation in the fundamental services is required. Personal skills for purpose of demonstration are not a major value. A deeper significance of the use of professional materials is also emphasized.

Realism. Emphasis is placed on the material aspects of specialized education. These materials have existence and are independent of the mind.

1. Interpretations. Primary importance is given the materials of specialized education and the scientific method in experimentation.

2. Objectives. Emphasis is placed on the scientific understanding of the individual and the materials of specialized education. The adjustment of the individual to his environment—both animate and inanimate—is of major importance.

3. Community organizations. These are established to meet existing conditions in society. Scientific techniques are used to determine the needs of society and individuals, and specialized programs are conducted by organizations to help meet needs for better individual adjustment.

4. People. Knowledge of the development of the individual as the result of his participation in specialized programs is a practice. The evaluation of the worth of program materials is also emphasized. The development of the individual to meet conditions in society is the usual criterion.

5. Programs. Materials are adapted to meet individual and societal needs. Proper program materials are stressed. Gradation of materials for individual development is scientifically considered. Program materials change as the problems and conditions of society change.

6. Leadership. Skill is needed in adapting materials to the needs of individuals. The scientific attitude and procedure are followed. The references for planning are the conditions in the world that need to be met by the individual. The leader's skills and those developed in the pupil are important.

7. Administration. Policies are influenced by the changing needs of the

individual and society. Procedures are based on scientifically established methods that meet the immediate needs of the individual in relation to accepted standards and values of the community. Experimentation is accepted and practiced.

8. History and trends. The best aspects of past experience are accepted. The basis for judgment is whether or not present conditions are met.

9. Professions. Education emphasizes scientific method and procedures, including knowledge of both the individual and the specialized materials. The adaptation of materials to meet individual and societal conditions is important.

Pragmatism. The practical aspects of health, physical, and recreation education are emphasized. Materials are considered acceptable if they have useful application to the individual and society and meet situations in a practical way.

1. Interpretations. The individual and society are important but problems are solved on a practical level. The materials of specialized education that work for the individual are considered useful.

2. Objectives. Of primary importance are the development of the total individual for self-satisfaction, and the preparation of the individual for community living by effective solution of present-day problems. The individual is provided with skills in order to aid in his adjustment.

3. Community organizations. Organizations are designed to meet a wide variety of needs and interests and must change to meet people's new interests. Organizations which have been found to be useful are encouraged.

4. People. Knowledge of how the individual meets everyday situations is desired. The practical uses of specialized activities in meeting problems are also of significance to the individual. Programs that work for the individual are considered valid.

5. Programs. The practical usefulness of the specialized activities is emphasized. Materials are used as the basis for the individual to meet daily requirements in health, physical, and recreation education. Those activities that do not have practical values are omitted.

6. Leadership. Emphasis is on problem solving by the individual. The leader's tools are the scientific method and procedures. Any pattern that is found to work is acceptable. The pupil is encouraged to use tested materials.

7. Administration. The administrator solves problems as they arise. He uses the special activities to help the individual and society to meet problems of leisure hours and health and to achieve satisfying participation in activities. His philosophy is based on the practical aspects of these special programs.

8. History and trends. Programs and activities which are still useful today are accepted. Baseball and other sports that have been found

valuable in meeting certain social needs are accepted by the pragmatist.

9. Professions. The importance of experience is stressed. The problem-solving approach is used in professional preparation. Practical programs are arranged.

OBJECTIVES

What should be the goals, what are we trying to accomplish, what are the objectives, and do objectives ever change? A program without objectives is like a ship without a rudder. Broad objectives do not change; specific objectives can and often do change. A drill on the basketball court may be for the purpose of developing greater skill in shooting. This is the specific objective; one of the broader objectives might be to develop sportsmanship or even to produce a winning team. After the shooting drill there might come a passing drill that has a different immediate objective. Hence, there are specific objectives, broad objectives, immediate objectives, and ultimate objectives which must be considered.

Objectives are usually well defined by professions. Social agencies, both national and local in scope, have set forth objectives for their operating units, but it is often essential for individuals on the instructional or administrative level to restate these objectives for local use in case the basic objectives must be modified to meet local influences and conditions.

All personnel engaged in health, physical, and recreation leadership should be conscious of the influencing factors. In addition, they must be cognizant of the functions necessary to control life's span, and finally they must be aware of the form the functions are to take.

Basic Influences Affecting the Establishment or Accomplishment of Objectives

Legislative. The laws and statutes which will be found at one of the following levels:

1. International. There are few laws at this level; maritime laws are one example.
2. National. There are many laws at this level involving areas such as health, narcotics, and communication.
3. State. School laws involving such aspects as attendance, money, and jurisdiction are found at this level.
4. Local. City ordinances predominate at this level. They involve traffic, sanitation, health, and other local affairs.

Political. This influence, although usually greatest at the local level, may be found on the following four levels:

1. International. United Nations and Olympic groups.
2. National. Appointment of officials by political parties.

3. State. Support of programs of health, recreation, and education by governmental officials.

4. Local. Attitude of local elected officials toward health and recreation.

Economic. Economic conditions influence objectives. An unstable economy usually affects the health and recreation programs more than it does physical education. Some important economic elements are business cycles, income levels, travel and transportation, and population.

Social. The people must never be overlooked. Social elements that must be considered are racial background, tradition or culture, and social organizations.

Religion. Some churches exercise considerable influence on the specialized area programs. For example, some churches do not permit their members to play ball or dance on Sunday.

Public relations. Regardless of how good a program is, it must be sold to the public. Public opinion often causes immediate objectives to be modified or changed; it is therefore essential to provide the public with accurate information about a program.

Individual characteristics of potential consumers. The ultimate recipients of the benefits of programs in the specialized areas are the people served. The physical, mental, emotional, and social characteristics of these people must be considered in the formulation of objectives.

Geography of the locale in which program operates. It would not be desirable to have as one of the program objectives of physical education in Florida the development of a high level of skill in skiing; but in a state like Vermont such an activity could be offered. The climate, topography, and resources of the local area must be considered when formulating program objectives.

Military. Military status often directly influences objectives in health, physical, and recreation education. Areas of major concern are the international situation, national defense, and universal military training.

Technological. The programs of the specialized areas are influenced by social, cultural, and technical developments; these should be utilized to improve professional activities and meet people's changing needs.

Functions Necessary to Control Life's Span

There are three basic factors to consider: developmental, survival, and adjustment. Professional personnel should review these factors carefully since the specialized programs contribute to the development, survival, and adjustment of individuals.

Growth and developmental factor. In planning developmental objectives, attention must be given to the physical, mental, emotional, and social aspects of human growth.

Survival factor. The problem of keeping alive relates to economic, housing, and environmental factors.

Adjustment factor. The problem of adjusting the objectives of any program to meet individual needs as reflected by animate and inanimate environment is constantly before the professional worker.

Objectifying in Light of the Form the Functions Should Take

The profession must consider the functions in terms of the form they are to take. In the specialized fields of health, physical, and recreation education the way has been fairly well established. These forms are professional, in which the specialized component of education is identified as a distinct profession; institutional, which relates to the public and private community agencies; individual, which includes the desires of individuals for specialized programs and skills; and integration, which concerns the coordination of effort of the professional areas.

COMMUNITY ORGANIZATIONS AND AUSPICES

Community organizations are the media or setting through which objectives are achieved. To accomplish the objectives of health, physical, and recreation education, there must be agencies and organizations that promote and conduct programs designed to aid individuals and groups to make satisfactory adjustments to their environment. The organizations and agencies render services which offer participants a richer and more wholesome existence. Hence, this function provides the setting, or place, and the impetus, or stimulus, through which individuals or groups act and cooperate.

The field of social organizations is vast; hundreds of national organizations and countless local agencies exist in this country. All were born because someone or some group was not satisfied with the social structure in which they found themselves. The urge for companionship, friendship, and fellowship provided the basis for development of this great number of social agencies.

Three factors need closer examination in order to understand more clearly the problems and operation of social agencies or organizations: the *influences* which are exerted on these social organizations, the type of *sponsorship* in force, and the *services* rendered by the agency. An analysis of these factors reveals certain sub-divisions which throw greater light on this function.

Governing Influences

Governing influences are those pressures that operate within a community and tend to make individuals and groups conform in opinion or action, resulting usually in a more stable community structure.

Socio-economic. Influences are exerted by current business cycles, credit

and money situations, production and consumption levels, and labor and employment conditions. They include, as well, communication, transportation, and technological developments.

Political. Political pressures operate at the local, state, national, and international levels.

Religious. Influences are often exerted by individuals, churches, or religious organizations; for example, the attitude of church groups on religious activity in the public schools.

Sociological. These influences originate primarily from the culture and mores of the people, the home and family, schools, and social institutions and organizations. They operate in situations such as rural-agricultural communities vs. industrial-urban communities.

Legal. Laws govern the people's actions and all social agencies serving people. These are in the form of school codes, city ordinances, state enabling laws, state constitutions, and national statutes.

Geographic. These influences consider the density of population and the homogeneity of the people to be served.

Technological. Developments in industry often influence society organizations and the social order.

Organizations and Institutions for Sponsorship

There are many groups that are organized for an utilitarian purpose and deal primarily with the welfare of the people. The organizations often vary in their codes, methods of operation, or immediate objectives, but seldom do they differ in the fundamental principles underlying their existence.

They require a structure within which people work, study, or play cooperatively. Except in schools, *most* activities are conducted on a *voluntary* basis. A characteristic of these organizations is that the social life within their structure usually outlasts biological generations, and survives drastic social changes.

Social organizations are usually classified as follows:

Public organizations. These are governmental agencies supported primarily by taxation. City departments of health, state recreation commissions, and public schools are examples. As far as the fields of health, physical, and recreation education are concerned, examples of public agencies found at the various governmental levels are:

<i>Level</i>	<i>Example</i>
1. International	United Nations World Health Organization UNESCO
2. National	U.S. Public Health Service U.S. Office of Education National Park Service

<i>Level</i>	<i>Example</i>
3. State	State departments of health State recreation commissions State education departments
4. County	County recreation commissions County health departments County school commissions
5. Local	City departments of health Departments of parks and recreation Departments of physical and health education (under the school board)

Private agencies or organizations. These agencies derive their support primarily from voluntary contributions. They are administered by community organizations such as a council of social agencies or the community chest. Examples of this type of agency at the various levels are:

<i>Level</i>	<i>Example</i>
1. International	Olympic Committee
2. National	American Association for Health, Physical Education, and Recreation National Recreation Association U.S. Public Health Service American Recreation Society American Red Cross American Camping Association
3. State	State associations for health, physical, and recreation education State tuberculosis and health associations State recreation societies
4. Local	Settlement houses Boys' clubs Churches YMCA Kiwanis clubs City physical education societies

Services Rendered by Sponsoring Organizations and Agencies

The type of services rendered by organizations and agencies will vary in accordance with the main function of the agencies. For example, the local swimming pool is concerned primarily with providing enjoyment and instruction in swimming, but the local department of health is concerned with the total health of the people of the community. The fields of health, physical, and recreation education provide the following types of general services:

1. Program: to offer activities for the enjoyment, education, and protection of people
2. Leadership: to guide and help people to accomplish their goals
3. Instruction: to develop skill and ability in specific activities
4. Guidance: to help interpret self and objectives

5. Facilities: to provide the space or environment for people to accomplish their desires
6. Equipment: to provide the tools essential to the accomplishment of the goals
7. Protection: to provide a safe and healthful environment
8. Public information: to keep the public informed of nature and scope of programs
9. Research: to explore new ideas and seek the answers to problems
10. Measurement and evaluation: to determine results of effort

PEOPLE—STATUS, EDUCABILITY, AND CAPACITY

Every activity in health, physical, and recreation education concerns people. To provide an adequate program that will accomplish the established objectives, a clear understanding of the people served is essential. Their capacities, status, general ability, educability, and needs must be thoroughly understood before a program can be adapted to meet their needs.

Three distinct approaches must be followed in seeking information about this function: (1) the information needed about people in order to be able to develop an effective program; (2) the factors which might influence or limit the determination of characteristics revealed in (1) above; and (3) administrative procedure to be followed to carry out a program of determining characteristics and needs.

To understand better what is involved in this function, these approaches need to be analyzed further.

Information About People Essential to the Development of an Effective Program

Physical characteristics

1. Structural: age, weight, height, body build, and sex
2. Functional: nutritional status, physiological status, motor ability, strength, neuro-muscular coordination, skill, endurance, health practices, and physical fitness

Mental characteristics

1. Capacity for learning
2. Ability and achievements
3. Attitude toward people and things
4. Knowledge: understanding of people and matters
5. Adaptability: ability to make satisfactory self- and group-adjustments

Emotional characteristics

1. Maturity as reflected in attitude and action
2. Stability under adverse conditions
3. Responses to diverse stimuli

Social characteristics

1. Home: relationships within family and general home conditions

2. Culture: the traditions found in family background and local environment
3. Character: as revealed by attitude and behavior
4. Religion: beliefs and practices
5. Economic: status and level of income
6. Human relationship: ability to get along with others

The health of the individual can be affected by any or all of these characteristics. It is generally agreed that there is physical, mental, emotional, and social health.

Factors Which Influence or Limit the Determination of Characteristics

General governing influences. These involve the forces which generally are at play and have direct or indirect influence on the characteristics of people and their determination. These forces include the following general areas:

- | | |
|-------------------|----------------------------------|
| 1. Philosophy | 5. Available tools or techniques |
| 2. Facilities | 6. Culture of people |
| 3. Leadership | 7. Personal inhibitions |
| 4. Administration | 8. Medical |

Methods and techniques used to gain information about people. The information gained about people and the process of education is limited by the methods and techniques available and their reliability and validity.

1. Records (recorded data)
 - a. Medical: record of disease and illness
 - b. Social: membership in organizations and performance records
 - c. Educational: the extent of formal education
 - d. Psychological: results of tests
 - e. Vocational: nature of employment, interests, and performance
 - f. Military: record of service
2. Measurement (obtainable information about the individual or group)
 - a. Tests: to determine status, educability, or capacity
 - b. Rating scales: to determine relation with others
 - c. Observation scales: to observe an individual in action
 - d. Interview and case studies: to reveal backgrounds
3. Evaluation (effect of process of education on people)
 - a. Observation: to watch performance of an individual in a given situation
 - b. Rating scales: for the evaluation of the various aspects of the process, facilities, and participation

- c. Interview: to reveal person in light of ability, attitude and relationship with others in a given environment setting
- d. Tests: standards to evaluate results of educational programs

Administrative Procedures

Criteria for selection of techniques. There must be a basis for the selection of techniques to be used to gain information about people. The following criteria are suggested:

1. Objective: what is desired as the result of programs?
2. Framework: what constitutes the areas to be measured?
3. Validity: does the technique measure what it purports to measure?
4. Reliability: is the technique dependable; does it yield consistent results?
5. Objectivity: has the technique removed the subjective factors; are results comparable when several persons use the same technique?
6. Levels of ability: does it meet the levels of abilities?
7. Manual of instructions: are instructions clearly stated so that different people will interpret the procedure in the same manner?
8. Scoring: is the scoring simple and does it minimize the possibility of error?
9. Nature of application: is the application of the results well established?
10. Nature of analysis: does the test provide consistency in the analysis of results; can the results be effectively analyzed?

Test construction. The procedure for construction of tests involves certain specific steps that must be followed in order to assure valid results. The steps are:

1. Establish program outcomes
2. Identify the various known qualities that constitute program outcomes and the various elements that constitute the program process
3. Establish and validate certain measures for the known qualities to be measured and for the process elements to be evaluated
4. Select items for the measurement of qualities and for the evaluation of program process
5. Determine the reliability and objectivity of test items
6. Determine the validity of those items which have been found reliable and objective
7. Prepare the test battery
8. Prepare the administrative manual
9. Try the instrument and make revisions, if necessary

Organization and administration of any measurement and evaluation program. The effectiveness and often the accuracy of any measurement and evaluation program are directly affected by the organization and ad-

ministration procedure under which this program operates. Some of the factors involved are:

1. Selection of measurement and evaluation materials
2. Organization of program
3. Selection and training of personnel
4. Supervision of the program
5. Analysis of results
6. Interpretation of results
7. Activity program planning

The use of measurement results. Unless the results of tests are used there is actually no reason for giving tests. Some of the ways tests results can be used are:

1. Measurement of individual achievement: what has been accomplished by the individual or group
2. Prognosis: the predictive significance of the information
3. Classification: for homogeneous grouping
4. Diagnosis: for program planning on individual needs
5. Motivation: for program planning according to interests
6. Research: for the improvement of procedures

The uses of evaluation. Evaluation aids in determining the status and needs of educative or recreational process. Some of the elements which may be evaluated are:

1. Administrative procedure
2. Leadership effectiveness
3. Facilities: adequacy, serviceability, and general effectiveness
4. Equipment: durability, practicality, and wearing quality
5. Activities: their value in the development of individuals from the physical, mental, emotional, and social aspect
6. Time and participation

PROGRAMS

The program promoted and conducted by any professional organization is the vehicle through or by which the objectives of that organization are accomplished. The programs of health, physical, and recreation education consist of activities that often vary in nature and scope, but inherently possess the elements conducive to individual self expression, creativity, satisfaction, and individual and group development and adjustment.

Any program of health, physical, and recreation education should comprise activities that have been scientifically selected. They must provide for individual, small group, and mass participation. In the planning of programs, whether local or national in scope, leaders must take into consideration the factors that *influence* or *govern* the execution of the

programs. The *educative* and *protective* factors must also be considered by program planners.

Too often programs, or some of the activities of the program, are planned *for* people and not *with* people. Here is where leadership comes to the fore. This topic will be discussed in greater detail under the section dealing with the "leadership" function.

Most instructors in physical education and leaders in recreation activities exhibit a pragmatic philosophy in that they choose those activities or use those methods that they know will work. They seldom select the unusual or new activity. Perhaps the philosophy which purports that people "do that which they know how to do" explains why this procedure is followed.

Governing or Influencing Factors on Program Planning or Operation

These are the factors that must be considered by the program planners.

Philosophy. Local interpretation of the field of endeavor engaged in should be understood, as well as the philosophy of the people and community in which the program operates. Philosophy can also refer to the individual belief of the teacher or leader of the program.

Objectives. The goals of the profession or of the immediate activity will naturally influence the selection and conduct of any program.

Environment. The surroundings in which the program is to be conducted must be considered, including both the *inanimate* and *animate* environments. The elements falling under these two components are:

1. Inanimate: pertaining to the non-living
 - a. Topography
 - b. Climate
2. Animate: pertaining to the living (people)
 - a. Age
 - f. Interest
 - b. Sex
 - g. Capacities
 - c. Occupation
 - h. Needs
 - d. Religion
 - i. Population density
 - e. Cultural background

Personnel (Leadership and Staff). The type of person available for leadership is an important factor influencing the program. The various levels of leadership involved are:

1. Instructional
2. Maintenance
3. Clerical
4. Administrative and supervisory
5. Advisory

Plant. The physical plant required for school health, physical, and recreation education is important.

1. Facilities: the space area and building
2. Equipment: the tools for playing games or conducting activities

Economic. The lack or availability of funds is a factor in planning a program. However, the mere availability of adequate funds is no assurance of a successful program.

Time. The amount of time allotted the program is a major factor for consideration, although it is recognized that some leaders require less time to accomplish a task than do others. Time can adversely affect the accomplishment of objectives.

Research. Programs will improve most rapidly when research precedes change. Research provides objective data for program planning.

Records and reports. Although this is an administrative function it nevertheless has great influence on program planners if voluminous records and reports are required. Many are valuable to program planning; some serve as deterrents.

Legal. The law can be permissive or prohibitive; thus it becomes a real influencing factor to program planners.

Public relations. The attitude of the people toward the program is important for leaders to know in planning or conducting programs. Any program that completely ignores public attitude will eventually fail.

Educative Factor

This factor concerns those components involved in the selection, adaptation, and evaluation of activities. It is where trained leadership exerts itself to the best advantage, since the performance of the function determines the quality and quantity of the outcomes. An outline of the many elements that fall under the educative factor is given here. These should be defined and amplified further by the professional leader.

Selection of activities for the program

1. Objectives: the goals to be achieved
 - a. Survival
 - b. Developmental
 - (1) Organic
 - (2) Neuro-muscular
 - (3) Emotional
 - (4) Interpretative
 - c. Adjustment
2. Motivation: getting people to participate
3. Variety: balance and greater choice
4. Growth: one of the long range objectives
 - a. Physical
 - b. Mental
 - c. Emotional
 - d. Social
5. Individual differences
 - a. Capacities
 - b. Needs
 - c. Interest and desires
 - d. Achievement

Evaluation of activities. The criteria for evaluation should be the

original objectives. These objectives to a large extent will center around survival, development, and adjustment of the individual.

It is important for a continuing process of re-evaluation, re-selection and re-adaptation of activities to take place.

Adaptation of activities to people and situations

1. People

- | | |
|---------------|----------------|
| a. Experience | e. Needs |
| b. Abilities | f. Flexibility |
| c. Capacities | g. Interest |
| d. Motivation | |

2. Situation or environment: the plant and other facilities used in the program

Protective Factor

Protective factors limit and control the conduct of activities and help eliminate the detrimental aspects of the individual program. They must be considered by program planners on a continuous basis.

Classification of participants. Those taking part should be classified on the following basis:

- | | |
|--------|---------------------------|
| 1. Age | 3. Capacities |
| 2. Sex | 4. Ability and Experience |

Classification of activities. This is desired to determine the balance of a program.

1. Types of activities

- | | |
|---------------|--------------------|
| a. Individual | c. Mass activities |
| b. Team games | d. Co-educational |

2. Requirements of activity

- | | |
|---------------|---------------------------------|
| a. Skill | d. Equipment |
| b. Time | e. Facilities (indoor, outdoor) |
| c. Leadership | |

Healthful environment. Reference is made to the surroundings in which the activities are conducted.

Safety procedure. This concerns facilities, equipment, and conduct of activities.

Supervision. This is necessary within the total program and involves:

1. Equipment and facilities
2. Participants
3. Leadership

Health service

- | | |
|-----------------|--------------|
| 1. Examination | 4. First aid |
| 2. Follow-up | 5. Insurance |
| 3. Immunization | |

Legal. Determination of permissive and prohibitive legislation and the question of liability.

Records and reports. References for evaluation, adjustment, justification, and for the use of posterity.

LEADERSHIP

Leadership in health, physical, and recreation education has the direct responsibility of *influencing* people to work together toward desired goals in these fields.

Leadership methods can be either democratic or autocratic. In a democracy there is little room for the commanding, dictatorial type of leadership. Good leadership, which deals directly with people, works *with* people, not *for* people. Furthermore, good leadership is always concerned about people, their welfare, their rights, and the preservation of their dignity; it is contrasted with the type that places the organization or agency ahead of the people.

It has been pointed out by many that a prerequisite to good leadership is "followership." Furthermore, it is possible to instruct people in activity without actually meeting the criteria of leadership.

Solomon defines leadership as "... influence with people—which causes them to: (a) listen to you and agree on common goals, (b) follow you or your advice, (c) go into action toward these goals."¹

The reward of good leadership is revealed in the joy and happiness of the people served.

There are certain characteristics that distinguish good leaders from inept leaders. One factor that identifies the quality of leadership is the rapidity with which a leader goes into action.

Action involving an emergency situation requires quick judgment. It is at such a time that the true qualities of leadership such as judgment, courage, sacrifice and temperament are exhibited. Leadership can be classified into different types. The methods employed by leaders vary in accordance with local conditions and the skill of the leader. The three elements, *characteristics of leadership*, *classification of leadership*, and *procedure for carrying out leadership*, constitute a framework for closer analysis of the function of leadership.

Characteristics of Leadership

The exact formula for effective leadership in health, physical, and recreation education has not been determined, but an examination of the characteristics of leadership under the divisions physical, mental, emotional, and social will reveal its necessary components.

¹ Solomon, Ben, *Leadership for Youth*. Peekskill, N. Y.: Youth Service, Inc., 1950, p. 5.

Physical. The general appearance and physical health of the individual leader include the following:

- | | |
|--------------------|-----------------------|
| 1. Energy | 4. Appearance |
| 2. Endurance | 5. Speech |
| 3. Physical health | 6. Ability to perform |

Mental. This concerns mental processes, including attitudes and concepts. Sub-divisions of this element are:

- | | |
|-----------------|----------------------------|
| 1. Intelligence | 5. Foresight |
| 2. Judgment | 6. Conscientiousness |
| 3. Attitudes | 7. Communicative technique |
| 4. Alertness | |

Emotional. This element concerns the responses of a leader to external stimuli.

- | | |
|-----------------|-----------------|
| 1. Self-control | 4. Cheerfulness |
| 2. Apathy | 5. Melancholy |
| 3. Enthusiasm | 6. Integrity |

Social. This characteristic deals with the leader's relationship with other people. It can be explained further by the following:

- | | |
|--------------------|----------------------------|
| 1. Sociability | 4. Understanding of others |
| 2. Moral standards | 5. Community consciousness |
| 3. Tact | |

Classification of Leadership

At one time there was little distinction made among leaders, except that some did more work or had greater ability and consequently were elevated to positions of greater responsibility. Now there are specific categories or levels of leadership, each with identifying characteristics. Four levels are generally accepted as indicative of the different leadership functions performed:

Advisory. Persons who are not trained for a professional leadership job in the field in which they function, such as members of commissions, boards, committees, and other organizations formed to help, guide, or give advice to a program, are usually members of this group. They usually represent the public and community particularly in recreation and health agencies. Examples of this level of leadership are found in:

- | | |
|------------------------|---------------------------|
| Recreation commissions | Boards of public health |
| Boards of education | Scout councils |
| Boards of directors | Camp committees or owners |

This level of leadership is tremendously influential, and often controls the operation and eventual success of the program. The advisory level of leadership is primarily concerned with:

1. Establishing policies
2. Reviewing aims and objectives
3. Recommending procedures for raising money
4. Public relations
5. Selection of personnel, particularly the executive director
6. Evaluation of program

Administrative. This level of leadership is directly charged with carrying out the program of health, physical, or recreation education. Examples of such leadership are:

- | | |
|---------------------------------|-----------------------------------|
| 1. Superintendent of recreation | 5. Scout executive |
| 2. School principal | 6. Director of health education |
| 3. Camp director | 7. Public health director |
| 4. Agency executive director | 8. Director of physical education |

The specific functions performed by administrative leadership are:

- | | |
|--|---|
| 1. Planning for program, facilities, and equipment | 6. Professional growth of staff |
| 2. Personnel administration | 7. Interpreting program to boards, committees, etc. |
| 3. Selection of personnel | 8. Evaluation of program outcomes |
| 4. Budgeting | 9. Management |
| 5. Public relations | 10. Maintenance and operation of facilities |

Supervisory. At this level are the program directors, field supervisors, and others who are concerned mainly with the work of the leaders or teachers. Examples of the functions performed by this level of leadership are:

- | | |
|---|---------------------------------------|
| 1. Coordination of program with administration policies | 4. Establishing and revising programs |
| 2. In-service training for staff | 5. Evaluation of program results |
| 3. Inspection of facilities and equipment | 6. Guiding program level people |

Instructive and leading. This is the program level which involves the teaching and leading of groups. There are two types of leadership, the *professional paid leader* and the *volunteer leader*. Examples of this level of leadership are:

- | | |
|----------------------|------------------------|
| 1. Playground leader | 5. Scoutmaster |
| 2. Teacher or coach | 6. Group worker |
| 3. Camp counselor | 7. Club advisor |
| 4. Case worker | 8. Public health nurse |

A breakdown of the elements of this function are:

1. *Professional.* A trained leader who is usually paid and who:
 - a. Teaches basic skills and facts
 - b. Creates learning situations
 - c. Combats and changes hostile attitudes
 - d. Guides and counsels
 - e. Organizes activities
 - f. Supervises volunteers
 - g. Cares for facilities and equipment
 - h. Renders special services such as performed by the:

(1) Physical therapist	(5) Dentist
(2) Occupational therapist	(6) Psychiatrist
(3) Nurse	(7) Medical social worker
(4) Doctor	(8) Athletic trainer
2. *Volunteer.* An unpaid student or interested lay person who usually performs in the following ways:

a. Assists professional leaders	d. Serves as coach
b. Teaches special activities in which he is highly skilled	e. Helps in surveys and studies
c. Serves as official	f. Does clerical work

Procedures for Carrying Out Leadership Function

Some people have desirable educational backgrounds, having been supplied with a basic knowledge of the field and the skills associated with successful leadership, yet fail as leaders. The methods employed in carrying out one's responsibility invariably determine the ultimate success of the leader. Two factors are involved in the execution of this function:

Awareness of the influencing factors that often govern or limit the scope of operation. Some of these factors are:

- | | |
|-------------------------|--------------------------------|
| 1. Finance | 6. Culture of people served |
| 2. Legal | 7. Religion of people served |
| 3. Facilities available | 8. Occupation of people served |
| 4. Time | 9. Political |
| 5. Philosophy | 10. Technological conditions |

Knowledge, understanding, and appreciation of the field. This is what distinguishes the professional from the volunteer. Some of the identifiable characteristics of this factor are:

1. Philosophy of the field
2. Aims and objectives of the field
3. Skills associated with the program
4. Program of activities
5. Methods of implementation
 - a. Conferences
 - b. Lectures and discussions
 - c. Clinics
 - d. Demonstrations
 - e. Forums
 - f. Surveys
 - g. In-service training
6. Techniques employed
 - a. Drills
 - b. Audio-visual aids
 - c. Criticism
 - d. Awards
7. Evaluation of results

ADMINISTRATION

Any program, whether it is in health, physical and recreation education or some other phase of education, needs established procedures of operation in order to accomplish its objectives. Administration assumes the responsibility for obtaining results and for carrying out the policy of boards, committees, commissions, or other advisory or controlling groups.

Administration is a process, a way of doing things. As was indicated in the section dealing with leadership, one of the levels of leadership is administrative in nature. Administration, further interpreted, is concerned with the organization and coordination of the tools—facilities, equipment, leadership and program activities—required in conducting a program.

Administration must be dynamic to be successful; furthermore, it must consider all the factors that can or do affect the execution of its function. It attempts, insofar as possible, to control or, when necessary, to change or eliminate these factors. Administration has the responsibility of planning, carrying out programs, and evaluating results. Although the person most concerned with administration is called an administrator, all leadership has some relationship to the elements of administration.

Two other basic considerations of the administrative functions are *organization* and *management*. The process by which the components of the above become effective is termed *coordination*; hence, this is one of the internal objectives of administration. Administration does not operate in a vacuum; it involves all functions in its execution.

Factors That Govern or Influence the Execution of the Administrative Function

The extent to which these many factors influence administration will vary from time to time depending upon a changing or static environment.

It is possible for the program in one local community to be influenced adversely, perhaps by the plant and equipment available, while in an adjacent community the influence of the same factors could be positive. The administrative unit must be fully cognizant of the governing influencing factors in order to be able to control them, minimize their influence if they operate adversely, use them to the fullest advantage if they are helpful, or eliminate them if necessary.

The elements which tend to influence or exert controls on the administrative functions, particularly as they pertain to health, physical, or recreation education are:

Philosophy. This provides direction or explanation, and can be subdivided further into:

1. Philosophy pertaining to contemporary life which establishes the fundamental basis for our action.
2. Philosophy of organizations related to the field of endeavor. Some of these organizations are public and private schools, social agencies, and health groups.
3. Philosophy of the professional fields of health, physical, and recreation education.

Legal and legislative. Law often limits the scope of the function. There are four sub-divisions of this element that are worthy of consideration: international, national, state, and local laws, and respective legislative bodies.

Economic. Availability of funds and the general economy of the community, state, and country often have great influence on the execution of the administrative function. Three aspects should be considered, governmental, private, and local community economy.

Political. Too often the political factor exerts greater influence than it should, causing an unstable local administration. With respect to the administration of the three fields, health, physical, and recreation education, national, state, and local political activity must be considered in order to assure desirable influence from politics in education.

Personnel. This factor usually exerts the greatest influence on the execution of the administrative function and often occupies most of the administrator's time. The success of the administrative function will depend on the degree of influence exercised over personnel and the relationship that exists between the administrator and his staff. Levels of personnel that must be considered are advisory, administrative, supervisory, instructional, volunteer, and maintenance.

Plant and equipment. The presence or absence of adequate equipment or facilities will influence any type of program and therefore becomes a concern of administration. Facilities should be thought of those for outdoor and those for indoor use.

Environment. The environment in which any program of health, physical, or recreation education is carried on will serve as a controlling or influencing factor. When considering this factor administratively, it should be kept in mind that environment is both animate and inanimate, and can be further divided as follows:

1. Animate (people)
 - a. Needs
 - b. Desires
 - c. Social mores
 - d. Culture of the people
2. Inanimate (pertaining to non-living elements)
 - a. Topography of area
 - b. Industrial and residential areas
 - c. Urbanization and rural areas
 - d. Geographic location

Religion. The religious influence on health, physical, and recreation education is not as great as it was 50 to 100 years ago. Nevertheless, it is a factor of which the administrator should be aware. This is particularly true of programs in health and recreation where religious beliefs, customs, and practices often prevent complete freedom of operation. Recently recreation has begun to utilize many religious customs in its program in an attempt to bring about better understanding among people.

Organization

This deals with how the function of administration is carried out, and is the structure through which a profession, agency, or department operates. It will ultimately determine the potential success of the administrative unit.

There are certain components of organization that must be considered when studying its relationship to administration.

Objectives. Educational objectives as well as the objectives of the special fields. It can be further delineated to apply to administrative objectives.

Policies. Guide posts for administration; they indicate the what, where, how, and why of doing things. The major areas where policies usually are formulated are legal, relationships, personnel, participants, and program.

Programs. Establishing procedures for operation and long range departmental or professional programs.

Public relations. Telling the story to the public is essential in order to gain support and recognition. This is an important function of administration.

Finance. The financial structure established for the conduct of professional activity must be planned according to the resources of the agency and the needs of the individual and society.

Personnel. The personnel needs for the conduct of the agency or organization must be determined according to what services are to be rendered.

Management and Supervision

The business of actually conducting a program involves management and supervision, two of the most important factors of administration.

Financial management. This has to do with funds, their procurement, accounting, and expenditure.

Office management. The effectiveness of a department is enhanced by good management. This includes staff, development of reports, collection of data for records, and office procedure.

Maintenance of property and buildings. This has concern with care of buildings, equipment, and facilities, and the management of personnel.

Supervision of personnel and property. This involves personnel, instruction and program, and plant and equipment.

Evaluation. This process takes place with staff, program, and facilities.

Coordination

Inter-departmental. Cooperation with other departments which may be at the local, state, or national level.

Intra-departmental. Cooperation between activities and staff members of a department.

HISTORY AND TRENDS

History records past events concerning war, art, institutions, science, industry, and human thought and effort. A study of history by present leaders often enables them to avoid repetition of errors made in the past.

A study of history involves research; however, some do not seem to recognize it as such since it does not use the experimental method. Nevertheless, the historical method of research is acceptable in educational research. A complete description of the historical method is presented in Chapter 9.

In education, and particularly in the special fields of health, physical, and recreation education, it is important for leaders to review the thinking, practices, and methods employed by past leaders in order to comprehend and evaluate better present day practices and problems. Much of the practice in these special fields is traditional, hence the importance of reviewing their history. Thus, history becomes one of the functions of the profession.

There are two basic sources of historical information: documents, and actual remains. Under the first would come reports of events and other printed matter. Under the second would come such items as people (retired), buildings, photographs, devices, and equipment.

There is one danger against which there must be constant vigilance:

misinterpretation. It is easy for the reader or the observer to misinterpret that which he reads or sees. An objective approach is essential when reviewing events of the past.

Another factor to consider is whether the source of information is primary or secondary. Primary sources provide the only valid basis for the study of history. An example of a primary source would be the actual record or proceedings of a physical education meeting; a newspaper account of the meeting or a verbal account by someone who was present would be a secondary source. Libraries are one of the best sources of historical information. Individuals would do well to acquaint themselves with the available literature in their field of interest.

In an historical study of any phase of health, physical, and recreation education there are certain factors which must be considered since they may have controlled or influenced the program.

Controlling or Influencing Factors

Legislation. National, state, county, and municipal laws and statutes.

Social. The customs, traditions and mores of the people.

Religion. The fundamental beliefs, such as: Oriental, Hebrew, Christian, and Mohammedan.

Government and politics. Forms of government and political influences are international, national, state, county, and local in scope.

Economic. The financial status of the state, county and community.

Geographic. Involving such factors as topography and climate.

Military. Preparedness for war or peace.

Professional Groups. Their activity and effort.

Technological. Influences of development in education and industry.

Forms of Professional Activity

In a study of the history of any professional group the format to follow is dictated by the forms of professional activity. This chapter deals with the functions performed by the professions of health, physical, and recreation education; hence, the nine functions that have been described constitute the framework through which any study of these professions must be made. These functions are:

1. Interpretations
2. Objectives
3. Leadership
4. Community organizations for sponsorship
5. Programs
6. People: measurement and evaluation
7. Administration
8. Professional growth and activity

Contributions Made Through Professional Activity

The nature and scope of the contributions made by health, physical, and recreation education will vary with each historical period. In order to understand fully these special phases of education, the contributions made should be reviewed. Contributions have only one valid basis: what changes, according to social standards, have been made in people? However, the process changes must also be considered as a professional contribution. These, further delineated, are:

People or product. The results of programs.

1. Development: changes made in people
 - a. Organic
 - b. Skills
 - c. Knowledge
 - d. Attitudes, appreciations, etc.
 - e. Social characteristics
2. Survival
3. Adjustment

Process. Improvements in the conduct of educational procedures.

1. Activities
2. Facilities
3. Equipment
4. Personnel
5. Time
6. Participation
7. Research
8. Environment

These contributions must be studied in functional historical periods. These periods may be:

1. Primitive Man
2. Biblical Period (2000 B.C. to 600 B.C.)
3. Grecian Period (600 B.C. to 90 A.D.)
4. Roman Period (90 A.D. to 1300)
5. Middle Ages
6. Renaissance and the Reformation
7. Colonization
8. National Period (1740-1860)
9. Immigration (1861-1900)
10. Modern Period of Industrial Development (1900-)

PROFESSIONS

For a profession to grow, it must have means of communicating ideas and experiences; it must establish standards of training and membership; it must develop an organization which will receive proper recognition and be able to promote the growth of the profession.

Kaufman discovered that there were certain characteristics of the more recognized professions (medicine, law, social work) that tended to distinguish them from the less recognized professions. Kaufman re-

stated these characteristics in terms of criteria for the profession of recreation. These criteria apply equally to the fields of health education and physical education. His suggested criteria are:

Criterion One. A profession is distinguished by a highly specialized technique which is based on service and learning, the practices of which serve practical ends; in the pursuit of those the practitioners assume a large measure of individual responsibility.

Criterion Two. The professional technique must be capable of communication through a highly specialized educational discipline.

Criterion Three. The professional technique must be of sufficient social significance and importance to warrant the exercise of some control over it by society, the practitioners themselves, or by both operating together.

Criterion Four. Preparation for, and practice of the professional technique so stimulates the practitioners that they form professional associations for improving its standards and extending its public acceptance.

Criterion Five. The conduct of the practitioners is a matter of concern to the profession and results in the formulation of codes of ethics.

Criterion Six. Within the profession there is a conscious recognition of a spirit of public service which places social duty as the highest goal of the profession.¹

All the functions performed by the professions of health, physical, and recreation education, from interpretation and objectives to administration and history, have been described in some detail. They constitute the premise upon which the professional structure is built. The strength of the professions will depend to a great extent upon how well these functions are executed.

Individuals make up the profession; thus individuals must contribute to the professional organization. There is strength in and through the group that is seldom obtainable by the individual alone, and yet the strength of the profession depends in many ways on the combined efforts and abilities of individuals in the group.

A close examination of the professional function makes it evident that there are four major concerns of the professional group: (1) the influences which are exerted on the profession, (2) the professional organization itself, (3) education for the profession, and (4) professional responsibilities. By showing proper concern for these points, a profession will be able to raise its standards, receive greater recognition, and subsequently make more effective contributions to society.

The profession must always be looking to the future by planning and seeking greater security. This might be appended as a fifth concern.

¹ Kaufman, Earl, Jr., "A Critical Evaluation of Components Basic to Certain Selected Professions with A View to Establishing Recreation as a Profession." Ph.D. thesis, New York University, 1948, pp. 454-606.

Basic Influences

The basic influences on the professional areas must be thoroughly understood and, where feasible, used to advantage. They are undeniably present and must be recognized and controlled in so far as possible if they represent negative influences.

Philosophy. This is related to a basic understanding of life and the schools of thought that prevail and influence the profession.

Economics. It has been revealed that the economic status of a community, county, or state, can affect the execution of any profession's functions. This factor might be reflected internally within the profession.

Geography. Location will occasionally limit professional activity. Opportunities for greater professional development are more likely to be present for professional members who live in or near cultural centers.

Socio-religious. The culture and heritage of the people served by the profession must be understood and used as a means of accomplishing basic objectives.

Legislative. Governing bodies and the laws they make often set limits for the profession. By being fully cognizant of these limitations the profession may take appropriate action to improve its status.

Political. Often the policy of a professional group may be the subject of political campaigns, sometimes as a target and other times as a part of the party's platform.

Technological. The community structure with all its ramifications plays an important role in any professional endeavor; health, physical, and recreation education must be aware of the social, cultural, and technical advancements.

Military. The influence of the military is always present. It is particularly influential in time of war in the fields of health, physical, and recreation education. During World War II great emphasis was placed on physical fitness and the profession was charged with the responsibility of helping to develop physically fit persons.

Professional Organization

The professional group or organization is most concerned with raising the standards of the profession, and the establishment of good public relations.

Standards need to be developed in the following areas:

- | | |
|----------------------------|-------------------|
| 1. Objectives and outcomes | 7. Administration |
| 2. Personnel | 8. Legislation |
| 3. Programs | 9. Evaluation |
| 4. Facilities | 10. Ethics |
| 5. Equipment | 11. Guidance |
| 6. Safety | 12. Salary |

Public relations is concerned with the promotional and educational activities which are useful to the profession.

There are two ways through which the professional organization attempts to accomplish the standards: first, through local, state, or national professional meetings conducted by the organization; second, by conducting research. Research may be carried on by individuals in the profession or by special committees of the profession and should be conducted in each of the nine areas described in this chapter.

Research is concerned with the problems of the profession, in order that it may become established, and with the problems of the conduct of professional programs, in order that optimum outcomes will result for the individual and society.

Programs concern the tools of the profession and involve the development of activity experiences which will meet effectively the needs of individuals and society.

Professional Education

The eventual success of any profession will depend a great deal upon the procedure for admitting new people into the profession and the educational process for personal and professional development. The steps in such development are recruitment, selection, education and guidance, certification, and accreditation.

Professional Responsibilities

Professional responsibility is both internal and external. Internal responsibilities are concerned with ethics, security, working conditions, guidance, legal status, and professional growth. External responsibilities involve relationship with other groups, social behavior, and political affiliation.

Professional Growth

Growth of any profession is reflected in greater recognition and acceptance by the public. Elements that usually exhibit growth in the eyes of society are:

1. Standards of education and training
2. Professional membership (number and requirements)
3. Research contributions
4. Service to society
5. Certification and licensing

CHAPTER 4

Operational Principles—Guides for Desirable Job Performances

Operational principles are primary guides for the determination of policies and procedures concerned with the functions or duties of education and its specialized areas, health, physical, and recreation education. Such guides are based upon fact and evolve from desirable experiences or judgments.

The necessity for enumerating guides in educational activity is widely accepted; not only do principles provide direction for activities but they may suggest criteria or standards against which the activity goals and accomplishments and resultant problems can be measured. The qualitative aspect of the principle serves to differentiate it from the quantitative relationship of the standard or criterion. A principle may be considered to have greater implications of breadth than the depth and specificity so well noted in the standard.

Identification of principles in health, physical, and recreation education can be adequately accomplished only if the principles are stated in terms of the functions of the specialized areas. This suggests that the duties to be performed in the specialized areas must be known and understood. Such a concept is strengthened by the fact that in the evolution of problems, the operational principles serve as a pattern against which the current practices are measured.

The efficient professional worker in health, physical, and recreation education knows his job (functions) by training and experience. He draws upon his knowledge and judgments and those of experts in his area to set up guides of action and procedural steps (operational principles) so that he may have direction and a general concept and outline of his plan. Next, he may quantitate these principles in order to develop evaluative measures (standards), and he reviews the current experiences in the field which relate to his job (practices). Finally, he attempts to fit the experiences in the field (practices) to the guides of action (operational principles) in order to see where the gaps exist in current experiences (problems).

Although the following illustration appears oversimplified, it may serve to further clarify the foregoing relationships. Principles, practices, and problems may be combined mathematically in the following manner:

$$\text{Principles} - \text{Practices} = \text{Problems}$$

The equation, of course, can be accurately stated only if the practices and principles are expressed for the same function; a problem cannot be ascertained by attempting to subtract a current practice in the administration of personnel from a principle dealing with budget assignments in program.

The purpose of this chapter is to present illustrations of operational principles related to the functions of health, physical, and recreation education. It must be understood that although each of these examples is complete, there is no completeness in terms of stating a principle for all subdivisions of functions regardless of the magnitude of the principle. Once the import of the illustrations is understood, expansion of the principles can be carried out by the reader. To do this, reference must be made to the relatively complete statement of functions found in Chapter 3.

HOW OPERATIONAL PRINCIPLES ARE STATED

A principle is properly stated when essential and descriptive words and phrases are used to define the *nature* and the *magnitude* of the principle. The qualitative terms *What*, *Why*, *How*, *When*, and *Where* provide meaning to the nature of the operational principle.

"What" principle. This principle emphasizes the *content* or *composition* of the phenomenon and may be illustrated as follows: Adequate facilities and professionally trained leadership should be made available to all participants. (Information is given on what should be made available.)

"Why" principle. This principle suggests the *reason* for the phenomenon. This is described by: Program activities should be scientifically selected so that merits and values can be qualitatively demonstrated. (The reason for the selection of activities is stated.)

"How" principle. This principle relates to procedures on the *conduct* of the phenomenon. An illustration is: The measurement and evaluation program should be so conducted as to provide solutions to such problems as lack of knowledge, time, and leadership. (Emphasis is given to how the program should be conducted.)

"When" principle. This principle suggests the *time* for the phenomenon. Such an example is: Special precautions should be taken to safeguard the lives and health of participants when hazards are known to exist and cannot be removed.

"Where" principle. This principle suggests the *place* for the phenomenon. This is typified by: For successful participation by special groups in programs, facilities should be proximate or readily accessible to such groups. (Location is intimated by this principle through the words "proximate" and "readily accessible.")

It should be observed that the nature or kind of operational principle could also be illustrated by a combination of descriptive terms. Thus, a principle could be stated with the descriptive concepts "How" and "When." For example: Construction of tests should proceed objectively and on a professional level so that valid results will be obtained when measuring the individual or process of the specialized areas.

An additional variation in stating a principle is observed when qualitative and quantitative terminology is used in one statement. This is illustrated by the following: Protective procedures should be established in programs to provide desirable participation and program outcomes and to satisfy a variety of needs expressed by participants.

In the preceding illustration, aside from why protection should take place (qualitative), consideration is given to variety of needs (quantitative).

The *quantitative* terms used to denote the magnitude of principles are *absolute* and *relative*. As quantitative relationships are given to the operational principles, they approach statements of standards. However, in this latter aspect, the primary basis of the principle, that of providing guides, is still present.

Principles described in absolute terms. Absolute terms suggest amount and are used without reference to other aspects. Words such as frequency, number, size, volume, time, distance, space, reaction, and force are indicative of absolute terminology. Examples in the statement of absolute principles are *frequency*: adequate medical examinations should be provided at frequent intervals for all program participants; *number*: the number of activities an individual should engage in should be governed by the worth of the activity and the needs and interests of the individual; *time*: administrators should provide an adequate economic structure for programs early in program development to insure optimum results.

Principles described in relative terms. Relative terms suggest comparison. Such terms and examples of related principles follow.

Percentage concerns that portion relating to the whole. Personnel trained and competent in first aid should be available at all times during physical education and recreation program activities.

Range indicates the extent of the phenomenon. Program activities should be provided to meet a variety of interests for all ages in both sexes.

Average describes the phenomenon in terms of the central tendency. Leaders should be alert to needs expressed by the group so that activi-

ties can be selected to meet average needs, and specialized experiences utilized for needs of the exceptional individual.

Variability suggests description of phenomena in terms of each other. Leadership should supply those experiences which will provide effective outcomes for those groups where there is wide variation in skills.

Distribution implies the nature of the massing or frequencies of the data. Differences in the distribution of job responsibilities should be clearly defined by administrators in order to get optimum responses from staff personnel.

Relationship describes the correlation between items. The leader should be aware of the correlation existing between adequate salary and efficient performance of duty.

Prediction indicates what may occur as factors tend to affect the data about a phenomenon. Social agencies should predict program outcomes for economic cycles of depression and prosperity to aid in insuring stability for the organization.

Causal concerns the cause-effect relationships. Valid criteria should be used to evaluate the factors of a program which have resulted in desirable outcomes.

Factors describes the parts that make up the phenomenon. The administrator should be cognizant of the component values in the abilities of individuals and their relationships to ultimate success as leaders.

Probability involves the aspect of chance or likelihood that the phenomenon will occur. Social organizations should record and study the factors that have been related to the effectiveness of their programs so that the probability of future success can be indicated.

As in the statements of qualitative principles, the operational principle given in quantitative relationships can be illustrated through a combination of quantitative terms. Thus, a variety of combinations can be utilized in the operational principles.

An illustration of the framework outlined in the foregoing discussion is given in Figure 2, which shows the functions and the nature and magnitude of the operational principles with the samples cited in the text. The organization in Figure 2 serves to guide the student and professional worker so that completeness in breadth and depth will be given to statements of the operational principles as they relate to functions. Theoretically, therefore, at least sixteen separate *nature* and *magnitude* principles can be stated for the major divisions and subdivisions under each of the nine functions.

SOME OPERATIONAL PRINCIPLES IN HEALTH, PHYSICAL, AND RECREATION EDUCATION

The following principles are presented for illustrative purposes in the larger framework of the functions or professional duties. The total num-

Functions or Professional Duties	Nature or Kind of Operational Principles*					Magnitude of Operational Principles*										
	What Principles	Why Principles	How Principles	When Principles	Where Principles	Absolute	Percentage	Range	Average	Variability	Distribution	Relationship	Prediction	Causal	Factors	Probability
I. Interpretations	Statement on the "What" operational principle should be available to all participants.	Statement on the "Why" operational principle, e.g., "Program activities should be scientifically selected so that merits and values can be qualitatively demonstrated."	Statement on the "How" operational principle, e.g., "The measurement and evaluation program should be so conducted as to provide solutions to such problems as lack of knowledge, time, and leadership."	Statement on the "When" operational principle, e.g., "Special precaution should be taken to safeguard the lives and health of participants when hazards are known to exist and cannot be removed."	Statement on the "Where" operational principle, e.g., "For successful participation by special groups in programs, facilities should be proximate or readily accessible to such groups."	Operational principle on the "Frequency" etc., of the conduct of functions, e.g., "Adequate medical examinations should be provided at frequent intervals, for all program participants."	Operational principle on the "Percentage" of the conduct of functions, e.g., "Personnel trained and competent in first aid should be available at all times during physical education and recreation program activities."	Operational principle on the "Range" of the conduct of functions, e.g., "Program activities should be provided to meet a variety of interests for all ages in both sexes."	Operational principle on the "Average" conduct of functions, e.g., "Leaders should be alert to needs expressed by the group so that activities can be selected to meet average needs and specialized experiences utilized for needs of the exceptional individual."	Operational principle on the "Variability" of functions, e.g., "Leadership should supply those experiences which will provide effective outcomes for those groups where there is wide variation in skills."	Operational principle on the "Distribution" of functions, e.g., "Differences in the distribution of job responsibilities should be clearly defined by administrators in order to get optimum responses from staff personnel."	Operational principle on the "Relationship" of functions, e.g., "The leader should be aware of the correlation existing between adequate salary and efficient performance of duty."	Operational principle on "Prediction" of functions, e.g., "Social agencies should aid in insuring stability for the organization."	Operational principle on "Causal" relationships of functions, e.g., "Valid criteria should be used to evaluate the factors in a program which have stimulated desirable outcomes."	Operational principle on the component "Factors" of functions, e.g., "The individuals and their relationships to their ultimate success as leaders."	Operational principle on the "Probability" of functions, e.g., "Social organizations should record and study the factors which have been related to the effectiveness of their programs so that the probability of future success can be indicated."
II. Objectives																
III. Community organizations and auspices																
IV. People—status, educability, and capacity																
V. Programs																
VI. Leadership																
VII. Administration																
VIII. History & trends																
IX. Professions																

FIGURE 2. A Framework for the Determination of the Nature and Magnitude of Operational Principles.

* An illustration is presented for each of the components relating to the *nature* and *magnitude* of operational principles. These components are not applicable to all functions or duties but the latter should be reviewed or applied as a basis for determining completeness of the principles.

ber of the principles given represents only a small percentage of those which can be stated, and the examples given apply only to the major subdivisions at the second or third order of the functions (Chapter 3). Furthermore, no attempt has been made to state the operational principles in terms of *nature* and *magnitude* completeness, as visualized in Figure 2. However, illustrations of nature and magnitude principles will be found. The reader should attempt to fit the examples into the framework (Figure 2), in terms of the functions (Chapter 3), so that the missing principles can be determined and subsequently supplied.

Interpretations

Teachers and leaders in health, physical, and recreation education should know and understand the basic philosophies that have helped to develop their specialized areas. There should be common agreement upon the general direction that education is taking and should take. Some leaders have considered an interrelationship of the three basic philosophies—Idealism, Realism, and Pragmatism—to be desirable; others have placed their emphasis upon one, then the other, until all the philosophical concepts in turn have been explored. Alone, each of these directing or explaining forces does not provide the guide eagerly sought by professional workers in the specialized areas; together, the philosophies should be applied to yield a more adequate direction for health, physical, and recreation education. A philosophy of education should be developed according to the problems confronting contemporary life, and the most acceptable solution offered as a composite of the basic philosophies.

General education. Education in a democracy should utilize the basic philosophies to help each person achieve the desirable development, leadership, and adjustment that will enable him to become a useful member of society and permit him to make contributions toward the improvement of mankind.

Educational philosophies should be highly correlated with the problems of contemporary life, and should be established as the directing forces of American education. These philosophies should be translated into objectives, and the objectives interpreted by organizations so that each philosophy's unique values may be preserved and optimum contributions made to the individual and society.

To plan educational programs effectively, information about individual status, ability, educability, and capacity should be procured. Educational programs should prepare individuals to live in a society and to make the most effective contribution to the solution of the societal problems. The selection of leaders should include an estimate of both their concern with educational process and their desire to be of service to humanity. Educational programs should be geared for the most valid

preparation of individual and society for the solution of problems. Leaders should be united into a professional organization in order that professional practice and the conditions of the profession may be improved.

The interpretations and implications of history and trends in education should be reviewed to serve as support for contemporary educational activity. Administrators should be prepared so that they may perform optimally in planned educational programs according to contemporary individual and societal problems.

1. Interpretations. The philosophies of general education should be related to contemporary life in order that educational experiences will be life's experiences and individuals can relate the solutions of educational and societal problems.

2. Objectives. In light of the basic philosophies of idealism, realism, and pragmatism, the end of educational experience should be the optimum physical, mental, emotional, and social development of boys and girls, and men and women, individually and collectively as a society.

3. Community organizations and auspices. The basic philosophies should be interrelated to provide opportunities for experiences of individuals as group members. The various community organizations should be utilized to foster personal responsibility in the group. Community agencies should be coordinated in terms of philosophy so that optimum effort may result for the solution of problems of the individual and society.

4. People—status, educability, and capacity. Through the contributions of the major philosophies, and particularly those of pragmatic nature, the determinations of status, educability, and capacity should be utilized as tools to measure the effectiveness of teaching and learning. These tools will help provide more accurate information than is possible to get by unaided estimates or judgment. As a result, measurement and evaluation should contribute indirectly, if not directly, to the effectiveness of teaching and learning. Characteristics which need to be known about the individual, according to contemporary educational philosophy, should be determined and measured so that direction can be given to teaching.

5. Programs. Current, widely accepted philosophies of education should provide the bases for the construction of curriculums and the development of programs. In this way leaders can clarify their own philosophies of education and increase their understanding of individual needs for optimum development. According to philosophy, the program in general education should provide the student with opportunities for supervised participation in activities that will satisfy his needs and desires as a growing and developing personality and as a functioning member of

a society. This philosophy should also view the problems of total society as a basis for program planning.

6. Leadership. Leadership should provide program direction and implementation based on current educational philosophies so that interrelationships for responsibility occur among the teachers, pupils, administrators, and other leaders in the community.

7. Administration. Administrative policies should be based on primary democratic philosophies. Educational administration should promote philosophical adjustment and clarification in keeping with the current needs of the individual and society.

8. History and trends. The determination of the philosophical basis for education should stem from past experiences, if they have current application, so that direction can be given to the solution of present and future educational problems.

9. Professions. Education as a profession should utilize the contemporary dominant philosophies to explain needs and wants and to direct the profession toward a realization of the fulfillment of the needs of the individual and of society.

Health, physical, and recreation education. Specialized area programs should be in keeping with the modern goals of education and should be integrated with the philosophies of general education so that optimum contributions to those goals will result.

1. Interpretations. A philosophical basis should be established for health, physical, and recreation education so that it will constitute an adequate explaining and directing force for the specialized areas. There should be correlation between modern trends in health, physical, and recreation education and contemporary life, and educational philosophies. The specialized areas should be re-directed in those instances where trends are not correlated with contemporary philosophy so that desirable ends will ensue. Modifications should be made in professional preparation and other professional activities so that there will be maximum contributions to the individual and society.

2. Objectives. Existing major philosophies should be reviewed and utilized to develop and clarify the objectives of health, physical, and recreation education and to encourage the attainment of desirable development, leadership and adjustment by the individual.

3. Community organizations and auspices. The various community agencies and institutions in the specialized areas should relate their activities to the needs of the participant and society as directed by the basic philosophies.

4. People—status, educability, and capacity. Measurement and evaluation should be used to provide indices for both leader and student to suggest the philosophical direction of the experiences being undertaken.

5. Programs. There should be a continuous and well-integrated program of activities in health, physical, and recreation education based on sound philosophical concepts and so presented as to meet the needs of individuals and society.

6. Leadership. Leaders in these specialized fields should have knowledge and understanding of contemporary philosophies to give direction in serving the individual and the community.

7. Administration. The responsibilities of administration in health, physical, and recreation education should be guided by the contemporary philosophies to the end of improving the individual and society.

8. History and trends. A review of the philosophies that have historically influenced the areas of health, physical, and recreation education, should be made to emphasize the means of developing the total individual. Historical studies should be made to aid in the promulgation of a philosophy of health, physical, and recreation education that meets the continually shifting needs of the individual and the community.

9. Professions. The teachings of the professional areas of health, physical, and recreation education should be in accord with those of the basic contemporary philosophies.

Objectives

The specialized area objectives should be compatible with those of general education and when attained, should improve the development, leadership, and adjustment of the individual in society. Objectives of the specialized areas should be redirected and additional objectives identified so that the modern goals of education can be realized.

Governing influences. The primary objectives of health, physical, and recreation education should be in harmony with basic influences so that the specialized areas can be enhanced by positive influences and not delimited by those of a negative nature.

1. Legislative. Health, physical, and recreation education objectives should be in keeping with existing and new laws and should serve as guides for the improvement of unsatisfactory legislation.

2. Political. The objectives of the specialized areas should be non-partisan and should be so stated as to encourage support from all political groups. Undesirable political influences on health, physical, and recreation education should be eliminated and favorable influences utilized fully for effective professional gains.

3. Economic. The objectives of health, physical, and recreation education should be so stated as to permit them to be attained by all persons, regardless of economic level. To meet the risks and changes in society caused by economic fluctuations, the broad, general objectives of the specialized areas should be strong and firmly fixed. Unfavorable

economic influences should be eliminated so that full potentials of activities toward the attainment of goals may be realized.

4. Social. The social development objectives of health, physical, and recreation education should be so described as to stimulate experiences in democratic living. Such objectives should encourage living to each one's fullest capacity. Unfavorable social influences on health, physical, and recreation education should be eliminated and desirable influences, such as the improvement of human relations and social objectives of education, should be perpetuated. The specialized area program should become one of community influence, rather than of benefit for a few. Social needs of the people should be incorporated into statements of objectives.

5. Religion. The objectives of health, physical, and recreation education should be interrelated with the purposes of religious agencies so that mutual cooperation toward realization of goals will ensue. Moral and ethical concepts of various religious agencies should be incorporated into the objectives of the specialized areas.

6. Public relations. The objectives for health, physical, and recreation education should be so stated as to encourage public support for the programs. Public relations should influence the people to observe closely the objectives of the specialized areas so that better understanding of the aims will result. Educational leadership should utilize various media to promote community understanding of the benefits of full programs of health, physical, and recreation education.

7. Geographic. In the development of desirable objectives, influences of topography and climate should be modified insofar as possible. The planning and formulation of objectives should take into consideration limitations of climate, terrain, and geographic resources. Objectives should be based on individual and societal needs in geographic areas.

8. Military. The objectives of the specialized areas should permit the attainment of development, leadership, and adjustment for all American youth during peace or war to the end that personal, community, and national security will result.

9. Technological. The objectives should be stated in a way to stimulate the development and utilization of technological advances. Objectives should be related to the physical, mental, emotional, and social changes in individuals in terms of the influences exerted upon such changes by technological developments.

Components of life's span. The specialized area objectives should be developed so that the entire population, from birth to death, may profit by the developmental, survival, and adjustment aspects. Health, physical, and recreation education should contribute to the objectives of effective and full living. Such objectives should be closely correlated with the needs of people.

1. Growth and development. The objectives should be stated to permit the individual to be guided in his growth and development within the limits of his capacities so that he may live at his optimum physical, mental, emotional, and social level and make effective contributions to society as a leader. Facts of growth and development should be obtained and made available for use in the formulation of the developmental objectives of the specialized areas. Facts should be procured to support current statements of objectives. Valid and complete information about growth and development of the individual should be utilized to assist in the modification and addition of developmental objectives.

2. Survival. Objectives concerned with the survival values should be established on a factual basis and should be major elements in the operating programs of the specialized areas. Individuals should be cognizant of survival objectives to increase their life expectancy and to protect the welfare of others.

3. Adjustment. The objectives should provide opportunity for the adjustment of the individual to his animate and inanimate environment. The nature and scope of the adjustment objectives should be developed according to the physical, social, mental, and emotional goals of education. The nature of the influences of animate and inanimate environments on the objectives should be studied to determine how these environments can be modified to assure favorable results in specialized area education.

Formulation of health, physical, and recreation education objectives. Formulation of the objectives of the specialized areas should be based on facts and upon a recognition of the full potential worth of the contributions of these areas. The objectives should be coordinated to provide effectiveness in community living.

1. Professional objectives. The objectives prepared by specialized area agencies should be supported by scientific fact and should be based upon the needs for professional development.

2. Institutional objectives. Institutional objectives should be correlated with professional objectives without over-emphasizing special interests and yet give recognition to unique purposes and contributions. The nature of institutional objectives should be determined according to contributions to individual and community needs. Such objectives should be formulated cooperatively.

3. Individual objectives. The objectives developed for the individual should be so directed as to encourage the desire to gain full values from the specialized areas. These objectives should recognize the varying needs of the individual and his role in society. Stimuli should be provided for each individual to encourage him to attain the utmost limits of his capacity. He should set goals for himself, taking into consideration the

physical, mental, emotional, and social needs and interests that will be necessary for his development, survival, and adjustment.

Community Organizations and Auspices

In any community, organizations and agencies should be of such quality and number to provide opportunities for individuals and groups to satisfy needs and to adjust to the dynamics of society through participation in specialized area activities.

Governing influences. Unfavorable influences on organizations and agencies should be removed to permit improvement in services to the individual and community; favorable influences should be fully utilized by the organizations and agencies to the same end. To extend services in order to overcome the unfavorable influences in a community, additional agencies should be established.

1. Economic. The economics of the social organizations should be so structured as to eliminate or materially reduce extreme fluctuations in health, physical, and recreation education activities due to business cycles of depression and prosperity. The economic bases for these specialized areas should be made strong enough so that services are available to the entire community. The state and national governments should provide finances for local programs of the specialized areas.

2. Communications and transportation. Facilities of transportation and communication should be fully and effectively used by all agencies to provide optimum results for individuals and groups from the values of the three specialized areas. Professional groups should be brought together at conferences more frequently and in larger numbers to plan solutions for the many problems in the conduct of community programs of specialized area education.

3. Military. Community organizations should provide programs that will prepare the individual for community life, as well as for military duties, in order to protect the community and nation.

4. Political. Unfavorable political influences on health, physical, and recreation education organizations and their activities should be removed or re-directed toward assisting in the positive development of these organizations and activities. Proper relationships should exist between the community and social agencies in respect to conduct of specialized area programs. Where such relationships exist only in part, adjustments should be made. Citizens should be made aware of their responsibilities for acceptance of programs in health, physical, and recreation education.

5. Legal. Organizations and agencies should strive to have those laws eliminated or amended which are detrimental to specialized area programs and to encourage legislation that will enhance services and activities for individuals and communities. Regulations should be provided

by agencies only if they are in the best interests of the individual and the group and in keeping with democratic practice.

6. Population. Organizations and agencies should be established and located in a community to serve all people equally, regardless of age, sex, race, creed, number, or economic status. More agencies should be established or activities re-directed in communities where present services do not meet the needs of people. The composition of the local population should be taken into consideration, especially in relation to homogeneous or heterogeneous factors, so that effective social agency programming will result.

7. Religious. Religious organizations should provide facilities for health, physical, and recreation education and should encourage their members to utilize such facilities as well as those of other agencies. The specialized areas should work cooperatively with religious agencies within the framework of limitations set down by the philosophy of the religious agency. The special organizations in health, physical, and recreation education should respect the prerogatives of the religious principles of these agencies and should advocate the use of modified programs whenever full programs are not desired.

8. Social. Agencies should inform community citizens of the positive social values of health, physical, and recreation education. The culture inherent in the family unit should be used by community organizations as a base from which the social development of the community may proceed. To assist in the promotion of health, physical, and recreation education, the social consciousness of the citizens in a community should be aroused.

Organizations and institutions for sponsorship. There should be an adequate number of public and private agencies at the national, state, and local levels. Existing organizations should be reorganized or enlarged, where necessary, to meet individual and group needs in the specialized areas of education. Such agencies should be developed within a socially accepted framework and should carry out functions that will insure their existence as long as such a need exists. These organizations should be established so that they operate on a cooperative basis.

1. Public. The number and quality of services of public organizations and agencies should be increased in order to meet the needs of the entire community. Agencies should be coordinated, on all levels, in order that optimum results will be gained through the programs of health, physical, and recreation education.

2. Private. Additional private agencies, conducting programs of health, physical, and recreation education, should be established for all age levels, if needed, or adjustments made in programs and services of existing agencies to meet the needs of people. These agencies should serve

to implement the work of public agencies conducting or sponsoring programs in the specialized areas.

Services rendered to the individual and community. Private and public services in health, physical, and recreation education should be available to all individuals and groups in a community. These agencies should provide broad and sufficient services with a minimum of overlapping and duplication except where warranted because of population size. Individuals should be aroused to seek and request such services, and should be motivated to pay for them directly or through taxation.

People—Status, Educability, and Capacity

The program of measurement and evaluation in health, physical, and recreation education should be planned and utilized to yield optimum results for individuals and society.

Information desired about people. To plan specialized education activities according to the needs of the individual and group, data concerning the individual's physical, mental, emotional, and social characteristics should be procured and applied. Leadership should be informed about people and the processes of the specialized areas and should know how such information can be used in planning programs.

1. Physical. Functional and structural information about people must be utilized to plan programs accurately. Instruments used for gaining functional and structural information should yield data in keeping with the objectives.

2. Mental. Mental or intellectual information about people should be procured and used to plan programs scientifically. The specialized areas should contribute to the mental development and adjustment of the individual. The degree of educability of the individual should be used as a basis of forming groups for instruction, competition, and appropriate participation in activities.

3. Emotional. Effective program planning should utilize information regarding people's emotional aspects. The specialized areas should contribute to the emotional development and adjustment of individuals and their relationship to the processes of health, physical, and recreation education. Emotional responses elicited by activities should be used as one means of evaluating the worth of the programs.

4. Social. Information must be obtained to develop socially accepted activities in health, physical, and recreation education.

Factors that influence and limit the determination of characteristics. Factors that affect the educability, classification, and testing of people should be understood and adjusted by workers, whenever possible, to provide the best measures of the individual's capacities and capabilities.

1. Governing influences. Governing factors or influences should be

understood so that information about people can be obtained despite these influences. Conditions within educational institutions should be made conducive to gaining valid information about people.

2. Instruments. Valid measurement instruments should be constructed and applied to gain information about people relating to development, leadership, and adjustment contributions made through health, physical, and recreation education. Such instruments should be designed to measure specific abilities and capacities within the physical, mental, emotional, and social make-up of the individual.

Administrative procedures necessary to gain information about people. The administrator should have such clearly defined duties that he is able to give proper attention and time to the conduct of measurement and evaluation programs. The administrator should be properly prepared for such responsibilities through pre-service and in-service experiences.

1. Criteria for the selection or construction of instruments. Test criteria should be applied often and properly so that instruments may be selected or more valid instruments constructed. These instruments should be developed to meet conditions of time, leadership, and equipment as well as to adhere to criteria of validity, reliability and objectivity. Test criteria should be made an integral part of professional practice.

2. Test construction. Construction of tests should proceed objectively and on a professional level so that instruments will yield valid results when measuring the individual or educational processes. Leadership in the specialized areas should be properly informed of the procedures for constructing instruments supplementary to those standardized devices prepared by research workers. Adequate norms for constructed instruments should be obtained and consideration given to institutional conditions in order that the test instruments will be used properly.

3. Organization and administration of the program. The measurement and evaluation program should be organized to provide solutions to such problems as lack of knowledge, insufficient time, and lack of leadership and facilities so that the program will provide the necessary information about people and the specialized areas. Variations in institutional and organizational conditions should be studied carefully to determine the necessary modifications in the administration of testing programs.

4. Use of results. For optimum benefits, the results of measurement and evaluation should be applied as early and as effectively as possible. Test results should be used to evaluate program outcomes and to adapt programs to the needs of individuals and society.

Programs

Health, physical, and recreation education programs should be correlated with the functions of the specialized areas and be in keeping with

the objectives. Such programs should yield optimum physical, mental, emotional, and social outcomes.

Governing influences. Influences favorable to programs in health, physical, and recreation education should be utilized fully to the advantage of such programs. Unfavorable influences should be removed or re-directed so that desirable programs and outcomes will result.

1. Legal. To provide opportunities for optimum outcomes, there should be a legislative basis for programs. Programs should be planned within existing legal requirements, and continuous effort made to secure passage of legislation that will provide for program improvement.

2. Economic. Adequate funds for all phases of the programs should be made available at the federal, state, and local levels.

3. Geographic. Programs should be carried out with regard to geographic conditions so that optimum ends will result. Wherever possible, adjustments should be made in geographic influences to permit the most desirable program outcomes.

4. Facilities. In the selection of facilities, standards for complete programs should be developed and utilized. Adequate facilities should be made available for all individuals and groups in the community.

5. Public relations. All methods should be utilized to influence favorably intelligent individual and group action toward the support of programs. Program activities should be demonstrated to the public to acquaint people with the value of specialized area education.

6. Research. To provide educational values for programs, student and professional research should be stimulated. Research should be adequately financed so that desirable and utilitarian knowledge regarding programs may result. Professional, institutional, and individual responsibilities for research should be clearly defined to provide direction for participation in research activities.

7. Population. Programs should be planned to meet the needs and interests of the total population in the community. Interests of the people should be so guided that there will be participation in programs providing developmental, leadership, survival and adjustment values.

8. Time. The length of time that an individual should participate in specialized area activities in order to gain optimum development and adjustment should be based upon the relative importance of that activity in relation to educational objectives.

Educative factors. Programs should be planned to provide experiences that will enrich the lives of the participants. Such programs must be developed in light of stated objectives, needs of people, and potential values of the activities. Facts should be procured to support the value of programs.

1. Selection of activities. Activities should be scientifically selected so that merits and values can be demonstrated qualitatively and quantitatively.

tively. Non-scientific processes used in the selection of program activities should be eliminated.

2. Evaluation of activities. Valid criteria should be used to evaluate the worth of various activities in the program, according to stated objectives and the anticipated outcomes. There should be scientific evidence of individual development, leadership, survival and adjustment emanating from the activities of the programs. Values of activities should be ascertained and measured on the basis of meeting needs of participants and society.

3. Adaptation of activities. Activities should be selected and adapted to meet individual and group needs, maintain interest, and develop the potential capacities and experiences of the individual. To assure optimum outcomes, adaptation of program activities should be a constantly recurring process.

Protective factors. Protective procedures should be established and constantly employed in all specialized area programs for desirable outcomes. Such protective factors should be controlled to the extent required for effective program results.

1. Examination. For all persons participating in programs, adequate medical examinations should be provided at regular intervals. Such examinations should become regular procedure for the entire population.

2. Classification. Programs should recognize variations in individuals according to age, sex, capacity, ability, and experience. Classification of such individuals for program purposes should be made so that optimum results in development, leadership, survival and adjustment will occur.

3. Safety procedures. Programs should provide knowledges, attitudes, behavior, and desirable skills relating to personal and group safety. Hazards which may lead to accidents should be eliminated from program activities, and adequate protection should be provided against potential hazards.

4. Supervision. Adequate and continuous supervision of program activities should be provided to safeguard the health of participants in the programs.

5. First aid. First aid facilities should be available for all programs. Trained and competent first aid personnel should be present at all times during program activities.

6. Legal. Adequate legal protection should be provided for leaders so that programs may be conducted without the restraint of fear brought on by possible personal or participant involvement. Liability insurance should be provided for the protection of the participants and the leader. Additional provisions should be made to protect organizations sponsoring programs against unwarranted legal action by participants.

7. Research and reports. Continuing study of protective aspects of programs in health, physical, and recreation education should take

place so that constantly recurring hazards will be revealed. Reports on accidents should be accurately maintained and used to correct or remove hazards causing the accident. Personnel should be encouraged to use information contained in the reports to assist in developing and carrying out protective phases of programs.

8. *Healthful environment.* Environmental factors that are controllable and that may have detrimental influences on personnel and participants in programs should be adjusted to provide optimum benefits from program activities. Criteria for such controls should be part of every program planning process. Standards for a healthful environment should be established as an important part of every specialized area program.

Leadership

Leadership should influence people and groups in a community to participate in programs in health, physical, and recreation education in order that they may be guided to the achievement of the most effective development, leadership, survival, and adjustment. Leaders should have special characteristics and should employ desirable procedures and methods to provide the greatest degree of efficiency in program execution.

Characteristics. The effective leader should be an integrated personality—physically, mentally, emotionally, and socially.

1. *Physical.* The leader should concern himself with energy, endurance, health attractivity, and good speech so that he may constantly and efficiently perform the duties for which he is responsible. The minimum physical characteristics for success in the various classifications of leadership should be so established that individuals will be able to meet these requirements with increasing age.

2. *Mental.* Intellectual requirements for success as a leader should include alertness, intelligence, and scientific attitude, which will enable the leader to perform his functions at the optimum level. The intellectual requirements for the various classifications of leadership should be related to the other school or agency duties that such leaders will perform. Minimum intellectual requirements for effective leadership should be established to assist in the provision of adequate leaders.

3. *Emotional.* Leaders should possess those positive qualities of stable emotional health that will encourage maximum desirable responses from the participants in the programs and that are necessary for the solution of leadership problems.

4. *Social.* Leaders should participate in social activities of the agency and community. Leaders should be reasonably well adjusted to societal patterns of behavior and should be able to interest and encourage others in total social development.

Classification of leadership. For optimum effectiveness, leadership should be organized according to the functions performed.

1. Advisory. Advisory leadership personnel should be drawn from the ranks of highly skilled professional and non-professional workers. It should provide services directed toward the fulfillment of the program objectives and leadership functions.

2. Administrative. Administrative leadership should coordinate the functions of organization, management, supervision and teaching. These functions should be organized to facilitate development, leadership, survival and adjustment on the part of the participant in the programs. Democratic leadership should be the basis for effective program administration.

3. Supervisory. Through democratic programs and policies, supervisory leadership should coordinate, stimulate, and guide the growth of all personnel and participants. Functions of the supervisor at various levels should be in keeping with optimum achievement of program objectives.

4. Instructor and leader. Instructor and group leadership personnel should be qualified by training and experience for adequate performance of variously required tasks. Instructors and leaders should be selected on the basis of training, personal attributes, attitudes concerning service, and skills in performance and in working with others.

Procedures for accomplishing leadership functions. The processes through which the specialized functions of leadership are carried out should be clearly understood and utilized by the leader so that optimum outcomes may ensue.

1. Governing influences. Factors which unfavorably influence the accomplishment of leadership duties should be eliminated or their emphases re-directed toward the fulfillment of leadership duties. Full use should be made of those favorable influences that provide for desirable outcomes in the role of leadership. Leaders in the specialized areas should participate in community affairs as active and concerned citizens to become aware of unfavorable influences, such as community and political pressures, and to be in an advantageous position to assist in the elimination of such influences.

2. Knowledge. To attain the highest level of achievement, leaders should obtain knowledge, attitudes, and appreciation of the specialized functions of their fields. The knowledge, attitudes, and appreciation should be readily transmitted to the participants so that desirable ends will result.

Administration

Administration should promote desirable conditions in health, physical, and recreation education so that programs in these specialized areas

will result in effective outcomes. Administration should provide structure, personnel, policies, and procedures to enable the fulfillment of program objectives.

Governing influences. Administration should counter the influence of factors that have an unfavorable impact upon programs and should utilize the favorable influences to the utmost for the promotion of programs.

1. Legal. Administration should strive for legislation at the national, state, and local levels that will promote wider program activities and that will provide stability for the administrative structures.

2. Economic. Administration should provide an adequate economic base for programs so that individuals and communities will gain full values. Various sources should be utilized for the procurement of funds for program development, as long as such sources do not control or unfavorably influence the objectives or their attainment. Valid criteria for allocation and expenditure of funds should be utilized so that the value of the program and activities will be given consideration.

3. Plant and equipment. Acceptable standards for selection, use, and administration of plant and equipment should be defined. Construction should be planned to provide facilities for full use by all individuals and groups. Administration should distribute facilities to coincide with the location and size of the program. Administration should know the needs of the individual and the community to plan the construction of plant and equipment properly.

4. Personnel. Administration should provide sufficient qualified personnel for desirable program outcomes.

5. Environment. Administration should know the physical, economic, and social characteristics of a community before planning its programs. For fulfillment of program objectives, administration should translate desirable environmental influences into action and should evaluate factors in the environment to determine those which validly represent needs of the individual and community.

6. Philosophy. Philosophies that exert undesirable influence on the administrator and his program should be discarded. Administration should interpret community needs adequately so that the program's philosophical structure will be sound. Philosophy or philosophies that will permit functioning for the greatest advantage of the largest number of persons should be employed.

Organization. Administration should develop the organizational pattern that will yield optimum outcomes. Organizational relationships to other phases of education should be such that contributions from all educational phases will enhance the program and its outcomes.

1. Objectives. Objectives in the administration of programs should be organized to allow maximum effectiveness in the development, leader-

ship, survival and adjustment of individuals and society. Administrative objectives should provide guidance to aid the individual to select and participate in activities in relation to his needs, interests, and limitations. Such administrative objectives should be developed so that professional personnel are cognizant of the direction suggested.

2. Policies. Administration should formulate policies to yield the most effective democratic procedures and to provide the best operational methods. All personnel should participate in policy planning to encourage group action in the successful fulfillment of the policies. Autocratic policy procedures should be eliminated.

3. Finance. Administration should develop and apply standards for the desirable financing of programs. Good judgment and an understanding of the program needs should be used in allocating funds for activities. Sound budgets should be established to insure worthwhile benefits from the income.

4. Programs. Administration should develop programs to provide balance to activities for the majority of participants. Programs should be administered for special individuals when the regular program cannot meet the needs of such persons. Desirable administrative controls should be exercised on programs so that maximum results will take place for the participant.

5. Personnel. Administration should assign sufficient and well qualified personnel to get quality in programs. Personnel requirements should be clearly expressed and criteria for evaluating the qualifications of such personnel should be provided and used. Duties of personnel should be adequately described in order to increase efficiency of program activity.

Management and supervision. Administration should define standards for management and supervision. Clear lines of administrative responsibility should be established in order to avoid confusion, overlapping, and duplication of effort.

1. Budget. Acceptable budgets for management and supervision should be provided by administration. Budget planning should be carried out cooperatively, so that management and supervisors have an opportunity to make allocations of funds according to needs. Budgets should be developed and applied on the prime requisite of valid needs.

2. Office management. Administration should so organize office procedure that efficient and continuous operation is insured. Sufficient properly trained personnel should be provided for adequate performance of duties. Duties of such personnel should be clearly enumerated.

3. Supervision. Administration should provide acceptable standards for supervision of all phases of the programs. Specialists, particularly skilled in supervision, should be made available for supervisory services.

4. Maintenance. An adequate maintenance staff should be provided

so that facilities are kept clean and in good repair and surroundings are made comfortable and pleasant. Duties of the maintenance staff should be clearly described by administration and the relative importance of such duties delineated.

Coordination. Administration should correlate agency activities in terms of needs of the people and should provide for the coordination of activities so that facilities may be utilized to the fullest extent.

History and Trends

Historical data should be used to provide understanding of all phases of health, physical, and recreation education and to serve as a basis for estimating needs of individuals and society. Such data should be correlated with contemporary problems to arrive at the most valid solution of individual and societal problems.

Governing influences. The nature of various influences and their implications should be understood when solving current problems relating to influences. The favorable and unfavorable nature of such influences should be studied in light of their contemporary relationships.

1. Legislation. The history of the influence of legislation on the programs of specialized education should be studied and such principles as can be derived should be applied to current and future programs. Legislation for programs should be enacted to insure the future success of such programs.

2. Economic. The history of economic influences should be studied to determine the implications for financing programs.

3. Religion. Past relationships of religious programs to programs of health, physical, and recreation education should be reviewed in order to arrive at some basis for changes necessary in light of contemporary culture and needs of the individual and society.

4. Geography. Studies of the past should be utilized to determine methods man has used to conquer his environment, so that programs can proceed despite unfavorable environmental influences.

5. Military. Past military influences should be studied so that procedure concerning the acceptance of the favorable and adjustment of the unfavorable influences can be determined.

6. Technological. Programs should be modified in the light of past and present technological advances and in keeping with the modern trends suggested by the atomic era. Workers in specialized area education should utilize fully the program opportunities presented by the increase of leisure time brought on by technological advances.

7. Political. The history of political influences should be used as a guide in planning solutions to the contemporary problems of individual and society. Political leaders should be made aware of the favorable

historic contributions of their respective groups to the improvement of specialized area programs, so that these leaders can be guided and their aid enlisted for program contributions.

8. Government. The past favorable and unfavorable influences of government should be studied and those utilized that can assist in meeting the current needs of people or in providing an index of trends.

9. Social and cultural. The contributions of favorable social and cultural community factors and groups, as reviewed historically, should be incorporated into the planning of present and future programs.

Forms of professional activity. The nature and scope of present programs should be in accord with vast programs that were geared to meet the needs of the individual and society, but should adapt such past experiences, when possible, to meet present and future needs.

1. Interpretations. The philosophical basis for present activities should be developed in the light of past philosophies, and according to current needs of the individual and society.

2. Objectives. Objectives should be stated in terms of present and future needs and interests; past objectives should be carefully studied and discarded, adapted, or fully utilized if applicable to current needs and interests.

3. Community organizations and auspices. As demonstrated throughout history, organizations should provide opportunities for exchange of ideas and techniques, for orientation in values and goals, and for close cooperation between professional and lay groups. Past experiences should be reviewed to learn and apply the implications for modern programs. Sponsorship for programs in specialized area education in the past has been limited; professional workers and groups should encourage greater sponsorship now and in the future. Agencies that have survived past limitations and controls should review their offerings to determine if they are best meeting the needs of people. Newly developed agencies should consider the history of the sponsorship of specialized area programs so that direction can be given to sponsorship of present activities.

4. People—status, educability, and capacity. Changing concepts of information desired about people should be used in program planning. Needs for information about people should be viewed in light of current philosophies and programs planned in accordance with characteristics of people and desired outcomes. The extent to which activities are in keeping with the desired objectives should be studied historically to suggest adjustments in the activities.

5. Programs. Planning of current programs should be made in the light of past records and experiences. The basis for changes in programs should be the past and present experiences that have met and meet the needs of the people and society.

6. Leadership. Past experiences in effective leadership should provide

direction in fulfilling present goals. The basis for changing concepts in leadership should be the history of leadership activities and their favorable results.

7. Administration. Administration, through a study of past weaknesses, should more effectively accomplish its responsibilities for the present and future. Methods and techniques of administration in the past should be utilized wherever possible to solve present problems.

8. Professions. Historical experiences in professional organization should be carefully studied to reveal those aspects that can be applied to develop strong organizations. The aspects of professional organization that have survived through history should be critically reviewed to determine their potential adaptability for future use.

Contributions Made Through Professional Activity

The nature and scope of the contributions made by health, physical, and recreation education will vary with the historical period. In order to understand the special phases of education fully, the contributions should be reviewed. Contributions have only one valid basis, namely, what changes, according to social standards, have been made in people. However, the process changes must also be considered as a professional contribution. These, further delineated, are:

People or product: the results of programs.

1. Developmental: changes made in people
 - a. Organic
 - b. Skills
 - c. Knowledge
 - d. Attitudes, appreciations, etc.
 - e. Social characteristics
2. Survival
3. Adjustment

Process: improvements in the conduct of educational procedures.

1. Activities
2. Facilities
3. Equipment
4. Personnel
5. Time
6. Participation
7. Research
8. Environment

These contributions should be studied in functional historical periods.

Professional contributions. The nature, scope, and limitations of past contributions should be considered in planning programs in these specialized areas for desirable outcomes.

1. Organic development. The changing concepts about organic development should be included in the consideration of modern activities in the specialized areas. Contributions toward organic development made through the various programs should be reviewed historically to observe where emphasis should be placed in contemporary programs.

2. Skills development. Contributions to skills proficiency during the

historical development of programs should be measured against present needs of people and society to determine if such contributions will currently apply.

3. Knowledge. Historical developments of desired knowledge about activities should be studied to select those that can be adapted or directly applied to modern programs.

4. Social adjustment. The past social purposes of specialized area education should be related to modern social purposes in order to arrive at their implications. Since each specialized area has its own historical background, the professional areas should integrate their services to help the individual gain through contact with a variety of social adjustment opportunities.

5. Military. Both the military agencies and professional areas should have an adequate historical understanding of their goals in peace and war so that optimum contributions can be made during civilian and military life.

6. Leadership. The nature and scope of past contributions to leadership abilities should be studied to determine what the specialized areas can do to enhance the leadership qualities of modern youth.

7. Economic. A review of the economic values emphasizes that governmental agencies should furnish funds to provide the minimum program essentials of the specialized areas for all people.

8. Political. Past political contributions at the national and international levels should be interpreted for the significance of their relationships to modern political developments.

9. Educational. Changing concepts of educational values should be considered historically to reveal their significance for current educational experiences in the specialized areas.

Trends. Trends in specialized area education should be analyzed in order to determine the favorable or unfavorable factors which have influenced them. Unfavorable influences should be eliminated or re-directed so that the trends may point to improved outcomes. The favorable factors should be further implemented so that specialized area education may attain higher aspects of quality and more desirable outcomes.

Professions

Workers in health, physical, and recreation education should be organized into professional groups in order to improve their contributions to the individual and society. The nature and scope of the professional organization should provide opportunities for individual and professional development of members, and best services for program participants. To supply optimum professional services, coordination of activities of the specialized areas should take place.

Governing influences. Factors that favorably and unfavorably influence

the professional organization should be utilized to the best advantage in the improvement of the professional activities.

1. **Economic.** Economic stability should be established for all organizational members. Salaries, equipment costs, expenditures for construction and operation, as well as other similar factors relating to the economic structure, should be adequate for desirable professional development and optimum personal and community services.

2. **Philosophy.** Specialized area education should contribute to the preservation of the democratic form of government and democratic living. The professional areas should participate in the solution of local, state, and national problems in order to strengthen the structures of the community, the state, and the nation.

3. **Legislation.** To insure adequate provisions for the needs of people and for communities to meet these needs, professional workers should promote national, state, and local legislation.

4. **Political.** Unfavorable political influences should be eliminated or re-directed and favorable influences encouraged for the best development of the profession. The nature of political activity at the local, state, and national levels should be such as to enhance specialized area education. Professional workers should participate in political activity that will improve their professional status.

5. **Military.** The basic professional structure of programs should be primarily geared to meet all needs, and the modification of civilian programs should be accomplished at such times as necessary to meet military needs.

6. **Cultural.** Professional programs should be adjusted to include cultural contributions by various groups and to meet the cultural needs of individuals and community groups.

7. **Technological.** The professional areas should utilize to the maximum the modern developments of transportation, radio, and television for the improvement of its members and recipients of its services. The nature and scope of the contributions by professional workers should be in step with technological advances.

8. **Religious.** Professional workers should strive to meet the religious needs of people in a community. The professional areas should aid in the development of the highest type of specialized education activities in religious organizations and institutions.

Professional organizations. Professional organizations should be so developed as to provide coordination of membership experiences, strength for the profession, and optimum services for individuals and groups within the community. Such professional organizations should have goals that are clearly apparent to their members and should be structured to provide ready and effective solutions to immediate and future problems.

1. **Standards.** Professional organizations' standards should be at the

highest possible level and should at least be equal to those standards set for general education. Standards should be so developed that national, state, and local professional organizations can best serve the needs of the membership at the respective level. Professional standards should be constructed to provide sufficient flexibility for adaptation of programs by individuals or groups. Standards for professional organizations should show primary concern with educational levels and requirements of members, professional ethics, programs for in-service experiences, certification, and accreditation.

2. Public relations. Professional organizations should recognize the value of sound public relations and should use all available media for the promotion of the professional areas and organizations. Professional workers should be encouraged to attend professional conferences held at city, state, regional, and national levels, to enhance personal development and strengthen the specialized areas. These conferences should be so constructed as to fortify the members' confidence in the profession, and to suggest means of notifying the public of the values of the professional areas.

3. Research. Research programs should be improved and enlarged in order that the basic problems facing the profession may be solved. Research should be carried out to improve the profession and to provide new means of meeting the needs of an ever changing society. Research relating to facilities and leadership should be defined and applied.

4. Program. Professional program standards for activities, personnel, facilities, working conditions, and salary should be established as bases for professional development.

Professional preparation. Professional preparation for the various levels and types of responsibilities should fit the professional worker for optimum performance on the job. Methods and techniques for the selection and training of individuals for the profession should be of the highest calibre to avoid down-grading professional standards.

1. Recruitment. Standards for recruitment of personnel should be developed and applied in order to attract those who have the personal qualities necessary for success. Employment should be made attractive enough to encourage well-integrated persons to enter the profession. The specialized areas should coordinate all efforts for the recruitment of qualified persons. All media of communication should be used in recruiting prospective candidates for the profession.

2. Selection. Standards for the selection of personnel should be developed and applied and should be part of the operating programs of all institutions preparing leaders in the specialized areas. Proper testing instruments should be constructed and used to gather valid data about the worth of prospective candidates.

3. Pre-service education. The program of professional education should

be designed to prepare individuals properly for various responsibilities. Such a program should be formulated to provide outstanding skills in one professional area and reasonably effective skills in other areas. Standards of accomplishment for professional preparation should be clearly enumerated so that the worth of the individual trainee can be measured at regular intervals. Pre-service experiences, to insure competence, should include broad, general education activities together with specialized study in the professional area.

4. In-service education. All available resources, such as study groups, workshops, conventions, and extension courses, should be used to keep professional workers aware of the changes occurring in specialized and general education. In-service education programs should be geared to meet the local needs of professional workers who should be encouraged to attend such in-service training experiences.

5. Certification. The professional areas should develop standards for certification in the specialized areas and should assist in their incorporation into state certification requirements.

6. Accreditation. Accrediting agencies should be stimulated by the professional areas to provide standards that will eliminate institutions not having adequate provisions for leadership education, or cause the institutions to improve their status. Professional persons should work cooperatively with accrediting bodies toward the development of desirable and workable criteria for evaluating the worth of a training institution.

Responsibilities. The professional worker should show desirable knowledge of, and attitude and behavior toward, the welfare of colleagues and the profession to the end of improving the profession.

1. Internal. Responsibilities of the professional worker should include those factors necessary for the proper functioning and development of the profession. Standards for the completion of these responsibilities should be clearly enumerated by the professional organizations.

2. External. Professional personnel should participate to the fullest extent as citizens in various community activities such as politics, social and religious projects, and cultural experiences. The professional areas should act in accord and carry out professional responsibilities with other concerned and interested organizations and agencies.

CHAPTER 5

Current Practices—Current Job Performances

The purpose of this text, as previously stated, is to provide a basis for the systematic identification and solution of problems in health, physical, and recreation education. To accomplish this it is essential that knowledge be obtained of the existing practices in these special fields of education. This information is necessary to determine the magnitude of problems rather than to serve as a factual basis for problem solution. In these fields a wide difference exists between "what is" and "what should be" educational practice. Therefore, as part of the systematic analysis a review of the periodical literature is needed in order to become acquainted with current practices. To assist the reader in approaching the current literature the following steps should be followed:

The selection or construction of a framework of functions. The functions or duties constituting the activities of health, physical, and recreation education are presented in Chapter 3 and should be used as a starting basis or framework for each of the three fields in determining current practices. The extent or the details of current practices reviewed will be determined by the extent of this framework of functions and its subdivisions. It has been found that the nine major divisions include all functions performed by the profession. In most instances subdivision of each of the nine categories of functions to the second and third order are adequate and inclusive. Summary of current practices to this degree will serve as a basis for the identification of the major professional problems. Further subdivision of functions will yield a basis for more detailed or minor professional practices.

The preparation of a bibliography. A partial bibliography, presented on pages 301-321, is included to illustrate the types of literature available for obtaining information on current practices. Such information is found largely in the periodical and survey literature dealing specifically with practices. Doctorate and masters' theses are additional sources of current practices.

The reporting of practices. The framework of practices may be applied to a local community, a state community, or on a national basis. Which basis is selected is determined by the use to be made of the information. If the concern is with the state program, that will serve as the reference. Since an all-inclusive picture is usually desired in a study of the problems of health, physical, and recreation education, it would seem that a national basis of reporting is required, and this is the basis used here. The presentation of current practices is for illustration purposes. The extent of the presentation of current practices is determined by the extent (in detail) of the determination (in detail) of problems. The current practices serve as one reference (usually the lower reference) and standards or operational principles serve as the other (usually the upper or higher reference), once problems are to be identified.

Since materials on practices are so varied and voluminous, it is usually advisable to report the information in the form of summary statements or conclusions, rather than detailed development of the facts leading to the statements of conclusion.

The three steps discussed above on the reporting of current practices are illustrated in the following development. The framework outlined in Chapter 3 is used without any attempt at completeness. The bibliography and statements of practice have also been developed for the purpose of illustration. No attempt is made to document the statements of practice, although it is recommended if one is interested in tracing a statement for more detailed development of its factual basis.

CURRENT PRACTICES IN HEALTH, PHYSICAL, AND RECREATION EDUCATION

Interpretations

The established directions and conduct of educational programs in the United States are as numerous as there are philosophies of education and life. With respect to basic directing philosophies of an institution or organization, it is safe to judge that no two institutions or organizations are alike. There is a predominant philosophy and many similar characteristics of application. However, each organization and institution tends to develop a philosophy for operations according to its view of the problems of individuals and society and according to its available resources for the accomplishment of the stated tasks.

The practices are reported according to the various functions of health, physical, and recreation education (Chapter 3). If desired, practices may be reported separately for health education, physical education, and recreation education.

It is necessary that a framework indicating the types of existing prac-

Functions or Professional Duties or Practices (Chapter 3)	Nature or Kind of Current Practices or Duties*				
	What Practices	Why Practices	How Practices	When Practices	Where Practices
I. Interpretations II. Objectives III. Community organizations and auspices IV. People—status, educability, and capacity V. Programs VI. Leadership VII. Administration VIII. History and trends IX. Professions	Statements on "what" are the various practices; e.g., "The measurement program consists largely of strength and motor ability testing."	Statements on "why" the various practices; e.g., "The five year professional education program is accepted by most professional leaders because of the need for a more adequate liberal cultural foundation."	Statements on "how" the various practices are coordinated; e.g., "The measure of energy expenditure in various life activities is gained in the laboratory by measures of oxygen consumption during the activity."	Statements on "when" the various practices are conducted; e.g., "Field experiences are planned early in the professional education program of the individual in order that one may correlate professional preparation."	Statements on "where" the various practices are conducted; e.g., "The 'living together' phase of one's education is more and more becoming a part of the school camp program."

Functions or Professional Duties or Practices (Chapter 3)	Magnitude of Current Practices or Duties*									
	Absolute		Relative							
	Frequency	Percentage	Range	Average	Variability	Distribution	Relationship	Prediction	Causal	Factors
I. Interpretations	Statements on the frequency of practices, etc.; e.g., "The most common activities in the school program of physical education are the sports activities."	Statements on the percentage part of the practice; e.g., "Ninety percent of the school program of physical education consists of sports activities."	Statements on the range of practice; e.g., "The range of practices on the selection of professional students is from no entrance requirements to competitive examinations."	Statements on central tendency or average practice; e.g., "The most common practice in the selection of professional students is the recommendation of acceptance by the admissions committee."	Statements on variability or fluctuation of practice; e.g., "The need and appointments for teachers are related and fluctuate with the economic structure of the nation."	Statements on distribution or spread of practices; e.g., "The distribution of physical fitness scores of high school boys is not normal—the mass of scores is found on the poorer levels."	Statements on relationships of various practices; e.g., "Numerous functions required by professional personnel are unrelated to the conduct of the programs of health education."	Statements on prediction of practices; e.g., "It is not possible to accurately estimate the need for professional personnel from year to year."	Statements on causal relationship of practices; e.g., "The causal factors related to successful teaching have not been determined."	Statements on factors favorably or unfavorably affecting practices; e.g., "All the factors related to the successful performance in the various sports have not been determined."
II. Objectives										
III. Community organizations and auspices										
IV. People—status, educability, and capacity										
V. Programs										
VI. Leadership										
VII. Administration										
VIII. History and trends										
IX. Professions										
	Statements of probability of practices; e.g., "The future of recreation in the United States appears favorable to its continued growth in communities."									

FIGURE 3. A Framework for the Determination of the Nature and Magnitude of Current Practices.

* An illustration is presented for each of the components of the *nature* and *magnitude* of current practices. These components do not apply to all practices but should be reviewed as a basis for the establishment of completeness.

tices be used. This framework should note the *nature* or *kind* as well as the *magnitude* of the current practices. The kinds of practices that exist are described by the terms *what*, *why*, *how*, *when*, and *where*. The magnitude of the current practice is described by absolute and relative terminology. Practices exist in amount; therefore absolute and relative terms may be used to indicate the amount that is most appropriate for the reported practice. These concepts on reporting practices are described and illustrated in Figure 3.

The fundamental philosophies influencing contemporary life find application in education. These are the philosophies of idealism, realism, and pragmatism and their subdivisions. Idealism places emphasis on the growth of self-awareness and the personality of the individual. The emphasis is essentially mental, emotional, and social. The mind and self are central, the material things are secondary. The philosophy of realism is defined as a philosophical correlate of science, and it is fundamentally in conflict with idealism. It is a doctrine that the material world has independence and objective existence separate from the mind and personality. Pragmatism is a doctrine whereby the whole meaning of a concept is found in its practical sequences. It is a philosophy that truth is found through action. In pragmatism the present problems are important; tomorrow's problems will find their own solutions.

General education. The modern emphasis and predominant philosophy in education is a continuous problem of the community, state, nation, and world. Education is becoming more community and individual centered, placing less emphasis on subjects and knowledge. Modern goals of education, on the professional level, are defined in terms of individuals and society. Individual education is in preparation for responsibilities to society. Such elements as ethical principles, critical and constructive thinking, understanding of human nature, aspirations, and professional skills, are important for individual education. Education for society is rooted in the problems of the community. The emphasis is on the structure and operation of a society and the interrelationships of people. Such education includes the fuller realization of democratic living; an understanding of the political, social, and economic structure; appreciation of scientific accomplishments and unfinished tasks of society; social responsibilities; and deep sensitivity to the emotions, hopes, and fundamental needs of human beings. Stress is further placed on knowledge and understanding and respect for people, their traditions, customs, and attitudes; the worth of human values and ways of living that we do not accept; interdependence of different peoples; and understanding of one's own culture.

On the operational level, the philosophies vary greatly from subject matter emphasis to the concepts representing the thinking of modern educators. The element of tradition is very strong in all educational

institutions, and resistance often occurs when efforts are made to modernize institutional philosophy. The philosophies of realism, idealism, and pragmatism and various combinations are applied as basic ways of interpreting and directing educational programs. A combination of realism and pragmatism is prominent in American education. The basic materials for education and for interpretation are represented by the *individual and the community*.

Health, physical, and recreation education

1. Interpretations. In practice, these specialized phases of education are not closely correlated with educational philosophy, although they are accepted as component phases of the total educational program. There is no identifiable predominant philosophy in these fields. In a number of instances the contributions that health, physical, and recreation education can make to the individual through improving physical, mental, social, and emotional development are considered as ends. Little attempt is made to correlate these contributions with community problems. In some instances efforts are made to use these phases of education as a means to an end, the end being the solution of community problems—local and world. Unfortunately, these programs are in the minority.

2. Objectives. The objectives of health, physical, and recreation education, although well-defined and generally known by leaders, are not always interpreted in terms of modern educational philosophy. The nature of organic development in a modern society, for example, is not established and, therefore, organic development becomes an end in itself. This is also true of the nature of mental, emotional, and social development.

3. Community organizations and auspices. The use of health, physical, and recreation education by private and public agencies to serve the needs of people in a community is on the increase, but there are many institutions that have not yet recognized the potential value of these programs. Most states have requirements for physical education, some for health education and for recreation, but the accomplishments of the programs are not meeting desired standards. Sponsorship of health, physical, and recreation education is both public and private. For physical and health education, the usual sponsor is the public. Private sponsorship of recreation is a great force in this country. With the exception of recreation, specialized area programs are found primarily in the secondary schools, and thus the present need for such programs is in the elementary school. Recreation programs are needed at both the elementary and secondary levels, and recently great emphasis is being placed on recreation programs for the aged. Attempts are now being made to gain sponsorship through finance and leadership for these programs.

4. People—status, educability, and capacity. Little correlation exists between modern philosophy of education and procedures (measurement

and evaluation) on gaining information about people. Measurement and evaluation, in those institutions where used, deal primarily with the measurement of the organic, skill, ability, knowledge, and attitude outcomes. The philosophical nature of these outcomes is not generally known. Much still needs to be done in determining outcomes through education and their measurement and evaluation.

5. Programs. Traditional programs are in common practice. In most instances these programs are unsatisfactory, according to accepted standards. In practice, the philosophical basis for the selection, evaluation, and adaptation of activities is not established. On the professional level, attempts are being made to interpret health, physical, and recreation education philosophically. At present, they are almost negligible.

6. Leadership. The majority of leaders in the specialized fields are traditional in their educational practice. Attempts are being made in teacher education to prepare leadership on a more cultural as well as more educational basis. This new preparation is to gain wider acceptance of specialized area programs in education. The philosophical basis for these programs is a part of this preparation, gained through greater emphasis on liberal cultural materials and philosophy.

7. Administration. Administrations, in general, are lacking in a sound philosophical outlook in respect to programs. Efforts are still being made to keep physical and recreation education apart from other school and institutional activities. Health education is usually more closely integrated with the total educational program. In the main, policies deal with these phases as ends, and not as means to ends that have philosophical validity.

8. History and trends. The history of physical education is expressed by the terms *physical culture* and *physical training*. In health education, emphasis has been given in the past to the terms *hygiene* and *sanitation*. Recreation has had its emphasis in the "play" concept. These views have almost disappeared, yet programs still have the marks of the philosophies of past ages. The trend, however, is toward using health, physical, and recreation education as media through which ends may be gained that are philosophically valid. Unfortunately, this trend is not a factually strong one.

9. Professions. Professional preparation in specialized area education has had marked improvement during the past few years. There has been a gradual movement toward a five year professional preparation program and increasing emphasis is placed on graduate preparation. The philosophical basis for specialization has a large and significant emphasis in American education. About one-third of the curriculum includes liberal-cultural materials.

Professional organizations are also beginning to view health, physical, and recreation education programs in an educational setting. Attempts are being made to gain an adequate philosophical basis for these programs.

Objectives

Governing influences. The formulation of objectives of health, physical, and recreation education is influenced favorably and unfavorably by a number of factors. The nature of the stated purposes of these phases of education has in a large measure determined the favorable and unfavorable nature of these influences. Leadership is generally cognizant of the influences exerted and tends to be governed by them and attempts to correct those influences that are unfavorable.

1. Legislative. Most states now have a legal basis for physical education; some states have provided a legal groundwork for health education; and there are numerous laws that pertain to recreation. The influence of this factor, in general, has been slight on local objectives. The "hands-off" policy of state departments is the usual practice. Local autonomy is the common philosophy, although it is more evident in recreation.

2. Political. Political influences have been exerted. In many instances this has forced the objectives of physical and recreation education to be directed toward the athletic phases of the program. The nature of the stated objectives, however, has not had significant political interference. In this respect, some political efforts have been favorable toward the purposes of health, physical, and recreation education.

3. Economic. The economic influence, per se, has not affected the statements of objectives, but because of leadership's awareness of this influence, modest statements of purposes are generally the practice. The financial support of these programs, in terms of their potential educational value, is inadequate.

4. Social. The social influences exerted on physical education are usually directed toward emphasis in the athletic program. The objectives, therefore, become highly specialized and the full usefulness of these programs is lost. Social influences on health education cause emphasis on individual development apart from the group. Recreation encompasses more social intercourse than either of the others. Some traditional influences, such as customs and beliefs, have also had effect on the stated purposes of these programs. Programs have become limited because of this influence, although it is recognized as a potentially favorable one. Educational programs today are planned to meet social needs.

5. Religious. This influence has not been directly related to the statement of objectives but, in some instances, it has been related to how the objectives were accomplished. There are some communities where this influence is unfavorable toward the full purposes of health, physical, and recreation education. Nevertheless, churches are beginning to use these phases of education as a part of their programs having religious-social objectives.

6. Public relations. Local newspapers, and public opinion in general,

have a marked influence on the stated objectives of specialized area programs. Much of this influence has been toward the promotion of the athletic program; little has been done to clarify the objectives through a public relations process. The development of a full program has been hindered, in many instances, by leadership's disregard of the need to inform the public. This medium is not used as often as it should be for the purpose of developing the programs.

7. Geographic. This influence is not directly related to the statement of objectives, but is related to how the objectives are accomplished. The program content varies greatly due to climate. Influences of the state governments are also marked. Local statements of objectives vary in emphasis more than in content.

8. Military. This influence is very marked in wartime. In peacetime, the influence, although not as strong, is still a factor. In general, the influence is unfavorable to the attainment of the full objectives of health, physical, and recreation education in relation to educational objectives. Emphasis is usually placed on the physical fitness objective.

9. Technological. Developments in industry and transportation have helped to emphasize the need for health, physical, and recreation education activities for their physical, mental, emotional, and social values. The concentration of populations, due to industrialization, has also had a marked influence on these phases of education for their social and recreational values.

Components of life's span. It is recognized, on the philosophical level, that health, physical, and recreation education can contribute to the improvement of individuals from birth to death. This concept, however, does not have full application in practice. In practice the application is largely on the school age population, although leadership in recreation and adult education is now directing efforts toward adults and the aged. The components of life's span, as it is related to life, are growth and development, survival, and adjustment. Objectives are rooted in the contributions that programs can make to these aspects of life.

1. Growth and development. The organic, skills, knowledge and attitude objectives are generally accepted and have their roots in facts on growth and development. Evidence supports these objectives. The objectives on leadership and adjustment do not have the same factual support and are questioned more in practice.

2. Survival. The survival basis for the objectives of health, physical, and recreation education has a factual application. These objectives are organic health, skills for human protection and improvement of fitness, knowledge for individual and group social adjustment, attitudes for understanding and motivating desirable behavior, and leadership for its social worth. Such justification is primarily on the professional level, but

it is beginning to serve more and more as the basis for the objectives in local institutions and agencies.

3. Adjustment. Adjustment values of health, physical, and recreation education and, therefore, the objectives, are accepted on the professional level. The human relations emphasis, in this regard, is of major significance. Local programs are not generally planned with this objective as the basis. It is recognized, however, that the adjustment process operates at all times.

Formulation of health, physical, and recreation education objectives. Statements of objectives for health, physical, and recreation education are made by professional organizations (e.g., American Association for Health, Physical Education and Recreation; American Recreation Society), by institutions (e.g., YMCA, public schools, boys' clubs) and by individuals and groups (clubs, individual reasons for activity). In general, a certain amount of agreement is found in these statements of objectives. Probably the most adequate statements come from professional organizations and institutions (those dealing with health, physical, and recreation education for their contribution to the development, leadership, and adjustment of an individual). In some instances individual objectives are not consistent with professional objectives, but satisfy the individual in terms of particular needs. Evidence is available in support of the objectives of health, physical, and recreation education.

1. Professional objectives. One of the official organizations concerned with the three fields is the American Association for Health, Physical Education and Recreation. Statements of objectives of health, physical, and recreation education represent the professional attitude about these programs. Recognition is given to these phases of education for their developmental contribution, leadership values, and contributions to the adjustment of the individual to self and group.

2. Institutional objectives. Statements of objectives will vary with the institution and organization. The differences are quite distinct between public and private institutions. For example, the objectives for the program of physical education in the YMCA may have a different emphasis from those for the public schools and colleges. The objectives, with few exceptions, have a basis in evidence and are considered to be a valid working basis.

3. Individual objectives. A high relationship does not exist between individual objectives and the *total worth* of health, physical, and recreation education. It is common for individuals to participate in activities for fun only, or to build a strong body, to become an athlete, or to improve personal health and other personal objectives. In most instances, individuals are satisfied that health, physical, and recreation education will contribute to these objectives. The accomplishment is the real motivation for the individual.

Community Organizations and Auspices

Governing influences. In order that the objectives, according to an accepted interpretation of health, physical, and recreation education, may be accomplished, community organizations, institutions, and agencies are needed to sponsor these programs. These agencies are numerous and are both public and private. The establishment and operation of institutions are influenced by a number of factors, which are both favorable and unfavorable. They determine the extent and nature of sponsorship of health, physical, and recreation education.

1. *Economic.* Business cycles and the economy of a nation have direct influence on the sponsorship of health, physical, and recreation education. In many instances during a depression these programs are considered unnecessary by public agencies and are either curtailed or dropped. Reduction takes place in leadership and facilities particularly. In some situations, particularly in times of prosperity, governmental finance has improved local programs. For physical education and recreation the emphasis is usually placed on the athletic program during periods of prosperity.

2. *Communications and transportation.* This factor has a favorable influence. Competition among institutions, as part of the program of physical education, has served to improve the program in many areas.

Conferences by groups and associations in health, physical, and recreation education have also been an aid in improving the programs throughout the country.

3. *Military.* This factor led to the development of organizations during World War II for the promotion of the programs of physical fitness and programs for the improvement of health status and community recreation. The influence is found also during peacetime, as the military are interested in promoting the fitness of youth for military services. This is particularly true during periods of partial or total mobilization. This influence, although it leads to the development of additional agencies, has a limiting effect on the program of activities.

4. *Political.* This influence is felt both favorably and unfavorably on all levels of operation, international to local. The political influence and implications of international sports such as the Olympic games is an example. Efforts to aid and cut expenditures for education are also common practice. Boards of education and trustees and directors exert influences on education that are in many instances unfavorable. The support of programs of health, physical, and recreation education is not widely practiced.

5. *Legal.* A legal basis has been established for many community agencies that sponsor programs of health, physical, and recreation education. State laws for public education and state requirements for physical edu-

cation are examples. Private agencies also have regulations that establish programs (YMCA, YWCA, boys' clubs, voluntary health agencies, etc.).

6. Population. The concentration of population also influences community agencies and their programs. Increase in the number of both public and private agencies occurs in densely populated communities. Such agencies as the YMCA, boys' clubs, and health agencies are usually established to meet the needs of people. Health, physical, and recreation education are parts of these programs. Organizations and agencies are now being established to provide services and programs for older people due to the increase in the older-aged population.

7. Religious. Religious organizations sometimes impede agency programs. The influence is sometimes favorable in supporting agencies that concern people in a community. The church as an agency may also conduct programs.

8. Social. Social and cultural influences in a community are pronounced. Those communities with high levels of social consciousness usually have organizations for the sponsorship of specialized area education. Athletic leagues, tournaments, inter-school programs, and working together on health problems are common in these situations. This influence is on the increase and is favorable for these phases of education.

Organizations and institutions for sponsorship. Classified as both public and private, their numbers are great. Part of the services rendered by these organizations is through the programs of health, physical, and recreation education.

1. Public. Schools, colleges, municipal recreation departments financed by local, state, or federal governments are included in this division. These agencies serve both youth and adults. A rapid increase is noted in adult education programs, which include health, physical, and recreation education.

2. Private. A considerable number of private agencies exist that include specialized area education as part of their programs. These agencies serve people of all ages, and although their origin may have resulted from a desire to provide wholesome recreation programs, many now also conduct health programs.

Services rendered to the community and the individual. Sponsoring agencies render services to the community and individuals in terms of the full scope of the programs of health, physical, and recreation education. Programs of commercial recreation, physical fitness clinics, professional athletics, development of physical skills, spectator activities, and health services are included in their activities. Agencies are established for sponsorship of these services; the baseball leagues are examples. These services, however, are reaching only a small percentage of the population of the United States. In communities where the services are

available, the number of those participating is only a small portion of the people in the community. This is probably due to the limitations of the offerings.

People—Status, Educability, and Capacity

Knowledge about people, as a basis for planning health, physical, and recreation education programs, deals chiefly with the *status* of the group. Measure of educability (rate of learning) and capacity (limits of development) are included in measurement and evaluation programs only in rare instances. This may be due chiefly to the lack of reliable testing instruments.

The terms *measurement* and *evaluation* are beginning to be used in education. The former concerns the product (individual) of education, the latter, the process (means to an end).

Information desired about people. In theory, the knowledge desired about participants in health, physical, and recreation education is commonly classified as physical, mental, emotional, and social. Leadership at the activity or participation level has been concerned largely with information on the physical. It is also further limited as it is common practice to apply a strength test or a motor ability test as a valid measure of physical abilities. The resulting information is used as a measure of the organic and skills objectives. In some instances it is not realized that this is only a partial measure of these objectives.

On the theoretical level, and sometimes on the operational level, leadership is beginning to think in terms of the whole individual and attempts are being made to gain a measure of the total performance of an individual in an activity. The major concern is development, although some effort is being made to measure the degree of adjustment made by the individual to his animate and inanimate environments.

1. Physical. The physical information desired about people in practice is *structural* and *functional*. Age, height, and weight data are gathered and used as the most common basis for classifying students. Sex information is used for separation purposes beginning approximately at the sixth and seventh grades. Medical examinations are required in most institutions, and are conducted by an institutional physician or by the family physician. Motor ability and strength tests are the most common tests applied as a measure of physical performance status.

2. Mental. Intelligence tests are used as knowledge tests. These tests are usually teacher-made tests, applied to measure teaching emphasis. A few standardized tests are available but find little application, except in graduate student investigations.

3. Emotional. At the present time, little use is made of available measures of such traits as emotional maturity, stability, frustration, and inhibition. In most programs of health, physical, and recreation educa-

tion no attempt is made to apply this information to program planning. Physiological tests (Schneider tests and lie detector tests) are used in some experimental studies as a measure of emotional status.

4. Social. Little use is made of tests available as a measure of social status. Tests of character and personality have been constructed to apply in health, physical, and recreation education, but these have found little application. The relationship of an individual to the group is determined by judgment on the part of the instructor and little use of this information is made in most programs. Recreation has begun to use knowledge gained about the group process.

Factors that influence and limit the determination of characteristics. It is commonly recognized in all measurement and evaluation programs that influences are exerted by such factors as school finance, facilities, leadership, and military. (See Chapter 3—Functions.) In most instances, these factors have an unfavorable influence when measured against educational standards. The philosophy of many educators appears to be contrary to the planning of an adequate program of measurement and evaluation. Some research, mostly graduate student research, is being conducted on the construction and application of instruments. But in most schools, time allotment is too little for an acceptable program of measurement and evaluation. The military influence has been very pronounced, as stressed by the fact that physical fitness testing developed rapidly during World War II and has continued today.

A second major influence is the lack of adequate records and measurement and evaluation instruments to gain information about people. Medical records are kept in many institutions and are rarely used except to limit physical participation. Social, educational, vocational, and avocational records are usually of little concern to the teacher or leader. Observation, interview, and the questionnaire are utilized in many institutions to gain information about people. Tests are used but are not as common. Rating scales find application in some institutions. In most situations full use is not made of the information which is available about the individual.

Administrative procedures necessary to gain information about people. The administrative conduct of the measurement and evaluation program constitutes only a small part of the teacher's or leader's time and effort. In many instances little interest and effort are given to these tasks. The educational preparation by many leaders also is inadequate.

1. Criteria for selection or construction of measurement and evaluation instruments. Criteria are well-established but not often used (validity, reliability, objectivity, norms and administrative). Tests that are used are selected on the recommendation of the leader without careful study of the worth of the test. In most instances instruments are selected that do not meet test criteria satisfactorily. A wide range of reliability

exists in available tests, according to test criteria. There are some tests that are invalid and others which have high validity and satisfactorily meet test criteria.

2. Test construction. Not until the past two decades have scientifically constructed measurement and evaluation instruments emerged. Prior to this time instruments were constructed on an empirical basis. Test construction on a standardized basis is accomplished largely by research workers in colleges and universities and by graduate students meeting graduate degree requirements. An interest in this phase of education has been demonstrated and a number of test instruments have been published.

Most of the tests constructed lack adequate norms. Sex and age are the common utilized factors, but there is a disregard for other important factors such as body build and physiological age.

An increase in the amount of time allocated to the preparation of personnel is noted during the past few years. Most professional curricula include a course in measurement and evaluation. This course emphasizes materials on statistics and test construction.

Teacher-made tests are common in the measurement of knowledges. No attempt is made to determine the worth according to test criteria. Curricular content is the major requirement.

Few tests have been developed specifically to measure recreation outcomes.

The preparation of manuals containing all details in test administration is not a common practice.

3. Organization and administration of the program. Few well-organized and administered programs of measurement and evaluation exist; a lack of knowledge is the chief barrier. Other factors are insufficient time, lack of facilities, lack of sufficient leadership, and lack of provisions for record keeping and analysis. The program of measurement and evaluation, according to objectives of health, physical, and recreation education, has not been established to fit the many varied institutional situations.

4. Use of results. Little application is made of the results of measurement and evaluation, according to the potential value of results. Test results are applied as a measure of status, but little use is made for purposes of diagnosis, prognosis, educability, and classification.

Follow-up is usually the most inadequate part of the institutional programs of measurement and evaluation.

Programs

Governing influences. Influences on the programs of health, physical, and recreation education are both favorable and unfavorable, with un-

favorable influences operating in most communities. Well-established programs are not the general rule.

1. Legal. Most states have a legal requirement for physical education and for some phase of health education in the public schools. Most private schools and many social agencies also have an established legal structure for this program. This pertains largely to provisions for leadership and time. Programs of activities are usually a local prerogative.

2. Economic. Financial support for all education is generally inadequate. This, of course, includes health, physical, and recreation education. The athletic program is usually self-supporting, and in some communities it helps provide financial support for facilities and leadership for physical education and recreation. Funds are not usually available for desirable health programs.

3. Geographic. The program of activities is directly influenced by geographic considerations. Climatic conditions influence programs to utilize natural environmental facilities.

4. Facilities. In general, a lack of facilities for the programs of health, physical, and recreation education exists. In most communities gymnasiums, fields, and health clinics are available, but the need still exists for more personnel and facilities. The program tends to be developed according to available facilities.

5. Public relations. Public relations activities are centered largely on athletic programs. Public support for health, physical, and recreation education is sometimes gained by exhibitions, demonstrations, and other forms of public display. Nevertheless, the public does not generally understand the nature and purposes of these programs.

6. Research. Some research activity is being conducted on the programs, primarily by graduate students. These studies deal with all aspects of the programs, but due to the lack of resources for research do not gain sufficient depth and scope to make the results immediately useful. Some studies do exist, but are in university or college libraries, and are rarely published.

7. Population. Sex differences are recognized in health, physical, and recreation education programs. There is a movement to provide for co-educational activities in the physical education and recreation programs in high schools and colleges. Differences are noted also in health teaching. Attempts are made to meet interests of people, but due to the lack of facilities and leadership this is usually not successfully accomplished.

8. Time. Time allowances in community public and private agencies are usually inadequate to gain the most thorough activity participation. In the schools, the time allocated to physical education is too limited for full pupil development. Some individuals are greatly motivated and spend much time in the pursuit of their recreational hobbies.

Educative factors. Planning programs according to the potential values of activities and in terms of stated objectives is not a common practice. Many programs are planned on the basis of leadership interest in certain activities, and according to available facilities.

1. Selection of activities. A scientific basis does not exist for the selection of activities in relation to individual and group needs and according to potential values of activities. Attempts are being made to plan the program on this basis, but it occurs in only a few instances and the scientific criteria are inadequate. Research on selection of activities needs to be established. Personal interests on the part of leadership are unfortunately the basis of selection in many institutions.

2. Evaluation of activities. A scientific basis for the evaluation of health, physical, and recreation education activities does not exist. Score cards have been prepared to evaluate the total program of activities, and some criteria have been prepared for the evaluation of activities. These, however, need further development in order to yield a more adequate scientific basis.

3. Adaptation of activities. Health, physical, and recreation education programs are normally planned according to leadership and facilities available, rather than according to needs of pupils at each level of development. Planning programs for various levels of development is a rare practice.

Protective factors. Providing protection for the individual participating in health, physical, and recreation education is common practice, although the quality of this protection varies from excellent to poor according to the quality of program planning.

1. Examination. A medical examination is a requirement in most schools, but it is not always accomplished. In most instances, those who participate in athletics must have a medical examination, and medical examinations are usually given to those entering school for the first time. In some institutions the physical education leader and the classroom teachers administer screening tests.

2. Classification. Classification for programs of health, physical, and recreation education is made according to sex and grade level, although the use of grade level classification is not always the practice. In some cases, tests are administered to determine the status or need of an individual for the activity being taught. The ability basis of classification is not a common practice and when used is generally inadequate.

3. Safety procedures. The protection of the individual for safe participation has major emphasis in physical education and recreation programs. This is common practice that is partially stimulated by the possibility of liability. Such controls as time for participation, length of athletic schedules, time for conditioning, and safety regulations on equipment are some of the common safety measures.

4. Supervision. Most programs are under supervision. The quality of leadership, although usually poor, is improving due to better professional preparation. The programs are under the supervision of professionally educated personnel.

5. First aid. First aid facilities are provided in most programs. The leader usually administers first aid under institutional and professional regulations regarding the scope of such practice. No attempt is made to encroach on the prerogatives of the physician.

6. Legal. Many states have athletic benefit plans for medical aid. Teachers in some institutions have liability insurance. In some situations a legal basis is established for the scope of the program.

7. Research and reports. These are generally kept on accidents and injuries. The details in connection with the accidents are, however, usually inadequate.

8. Healthful environment. The environment for participation is usually acceptable. Good health practices in the gymnasium and in the shower rooms, however, are not always evident. The emphasis in modern construction is on health for the individual.

Leadership

Characteristics

1. Physical. The leadership in health, physical, and recreation education, when compared with other teachers, is physically superior. The leaders are usually well skilled in activities. These qualifications are necessary since the day is long and the physical drain is heavy. For physical educators, generally, the teaching day includes classes from 9:00 A.M. to 3:00 P.M. and two or three hours of coaching duties in the afternoon.

There is no uniformity in dress for teaching duties in physical education or recreation. In many instances the teacher retains street clothes in the gymnasium and on the athletic field, but effective teaching, in most cases, does not result.

Many physical educators and recreation leaders move into administrative positions when the physical strain of teaching becomes too great with increasing age.

2. Mental. Intellectual requirements for leadership in health, physical, and recreation education have increased over the past few years. In physical education and recreation the day of the "muscle man" is over. Professional curriculums call for mastery of biology, sociology, English and other cultural courses, which constitute the same basic requirements for all teachers. The work in the institutions also requires the physical and health education teacher to take his share of general school duties. In about half of the institutions the physical education or health teacher has a requirement of one or two academic subjects besides his physical or health education teaching.

3. Emotional. Most health, physical, and recreation education leaders possess emotional stability under conditions of stress found in teaching and coaching. In general they are self-controlled, enthusiastic, and sympathetic in their relationships with people. They work closely with students and other people with whom they have contact and generally hold people's confidence. They usually have a high level of integrity.

4. Social. A wide range of practice exists, but in most instances the social qualities of specialized area leaders are superior to other teachers. They have well-adjusted social attitudes, which enable them to interest their group favorably. They have, in general, an understanding of and enjoy relationships with people. In some instances this leadership is concerned with community problems, and they participate as citizens. Unfortunately this is not a common practice, which may be due in part to a busy professional life.

Classification of leadership

1. Advisory. This classification of leadership consists of the school board, board of directors, board of trustees, and similar organizations. The members of these boards are citizens interested in contributing their efforts to the improvement of the educational program. It is usually their responsibility to represent the community and their fellow citizens, and approve, reject, or modify the proposed programs presented by professional leadership. In general, these boards have been favorable toward health, physical, and recreation education as evidenced by the rapid growth of specialized area programs. This leadership, although advisory, represents a final authority in many institutions.

2. Administrative. Administrative leadership for health, physical, and recreation education ranges from the national (U.S. Office of Education, National Education Association, recreation agencies), state (state directors, state recreation commissions), to local committees (institutional directors). The health, physical, and recreation education administrator is usually directly subordinate to the general administrator and works directly with him on policies pertaining to the programs. Democratic practice in the formulation of policies is on the increase, but autocratic methods are still found in numerous institutions. In evidence is a growing acceptance of the attitude of the profession that the solution of problems by use of the democratic process is desirable.

3. Supervisory. Supervisory leadership in health, physical, and recreation education is not common, due to the fact that most institutions are too small to employ supervisors. The administrator may become the supervisor. In larger centers and institutions, the supervisor is generally assigned the task of helping other teachers or leaders carry out their jobs. This is particularly true in the elementary schools where the classroom teacher is responsible for health, physical, and recreation education activities.

4. Instructive and leader. This includes both the professional leader and nonprofessional voluntary leader. The large number of professional leaders are teaching health, physical, and recreation education with only partial preparation and, as a result, teaching becomes inadequate and unsuccessful. In the larger communities the qualifications for leadership are usually high and leaders are free to concentrate on their duties, but this is not true in the smaller communities.

Volunteer leadership is found in private institutions and in public institutions, although it is not common in the latter. The use of student leadership in schools and colleges is increasing. These individuals help professional leadership in teaching, keeping records, aiding in supply rooms, and other routine matters. This is considered desirable and is on the increase, but, in some cases, volunteer leaders are given responsibilities beyond their abilities and as a result the work is unsatisfactory.

Professional leadership in health, physical, and recreation education also includes the physician, dentist, nurse, and therapist. (See Chapter 3.) These individuals assist in advising the leadership on the participation and the health status of the participants. In nearly all institutions they are part-time people. Civic-minded professional individuals in a community sometimes donate their time to these services.

Procedures for accomplishing leadership functions

1. Influencing factors. The inadequacy of the salaries for leaders in health, physical, and recreation education is recognized and makes the problem of financial adjustment to a community difficult. Community pressures on leaders are sometimes adverse, resulting in unhappiness. Political pressures in some communities are exerted on the teacher for participation in community political affairs. Generally, community factors, particularly in smaller communities, are directed more at the teachers than at any other social group. Through public relations, efforts are being made by professional associations to have the public consider the teacher as any other professional person in a community, but much work still remains to be done in this direction.

2. Knowledge. Wide ranges of practice exist. A number of leaders, particularly in small communities, are working in health, physical, and recreation education without professional preparation. This is due in part to the lack of professional requirements for teaching the subject and in some instances to the necessity of teaching several subjects, and in part to the lack of interest of the school administrator, as well as the lack of state certification of health and recreation leadership.

Since standards for programs of health, physical, and recreation education have not been fully established, there are often as many programs as there are leaders. These programs may range from a single activity to a balanced variety, and the methods of teaching or leading also vary with different leaders. The practices in these respects are hardly acceptable.

Administration

Governing influences. Because of the great effect of the influencing factors on educational practices, administrators are constantly attempting to eliminate the unfavorable influences and encourage the favorable ones. In most communities the number of unfavorable influences exceed those that are favorable.

1. Legal. The legal basis for education has been established in all states, but state regulations vary greatly. Thirty-seven states have enacted laws relative to physical education; of these, 33 have health and physical education mandatory in all, or parts of, the school systems, and 30 have established minimum time allotments. The 37 states having legislation represent 90 percent of the total population of the United States.

In communities the responsibility for education rests with the local board of education and board membership is usually on an elective basis; therefore, the board of education represents the people in the community. State regulations must be met by local communities.

2. Economic. Financial support for education is not adequate. Health, physical, and recreation education programs must be conducted on limited budgets. Lack of leadership and facilities for the conduct of the programs is the greatest obstacle to success. Changing economic conditions point toward increased financial support from the federal government as a means of equalizing educational opportunities among the various states. The cost of operating programs of education has increased greatly during the past few years. Building costs particularly have shown a marked increase. Some financing of physical education and recreation programs is done through the use of athletic program receipts to obtain better facilities and equipment.

3. Plant and equipment. Administration of most programs has been limited because of the condition of, and lack of, equipment and facilities. There has been a lack of coordination among the architect, school administrator, and specialists in health, physical, and recreation education, and consequently plants have not always been constructed for the most effective and functional use. Standards are available for the construction of plants as well as the purchase of facilities, but these standards are not normally used as guides by administrators when plans are made. There is increased use of the school buildings and facilities for after-school community adult education and recreation programs. Many leaders of the specialized areas serve these programs. Health education specialists often participate in the adult education programs.

4. Personnel. There is a shortage of qualified administrative personnel. Poor salaries, in part, account for this shortage. In 41 states, administrative personnel, at the state level, have responsibility for physical and

health education in the public schools; they render services to local communities and try to improve programs.

There are approximately 500 colleges offering work toward a bachelor's degree in health, physical, and recreation education, about 100 offering a master's degree, and about 20 a doctor's degree. In most cases, the courses offered are integrations of the three phases of specialized education. In some institutions, beginning at the junior college level, there are separate curricula for each of the three specialized areas. In most institutions admission requirements are well established. More teachers of physical education and health education are needed, as well as recreation leaders.

5. *Environment.* Local newspapers, radio, churches, industry, and other agencies in the community exert a strong influence on the administrator. Some of these influences are desirable and represent community needs for health, physical, and recreation education. In most instances the administrator is more school-minded than community-minded.

6. *Philosophy.* The modern philosophies of education are beginning to have their influence on health, physical, and recreation education. This influence places unusual stress on the social outcomes of education, as well as the organic and skill outcomes. Knowledge and attitudes are also important. In the main, however, programs are conducted without any conscious philosophical basis or motivation.

Organization. Most institutions having specialized area programs have an organized department with an administrator in charge, but in the smaller institutions the department often consists of only one person having all the responsibilities of the program.

1. *Objectives.* Most departments have stated objectives, although, in most instances, no attempt has been made to evaluate these in terms of modern educational philosophy. The fulfillment of the objectives is only partial. Athletic programs are strong and occasionally dominate the specialized area programs. There is a trend to de-emphasize competitive athletics in favor of stronger physical education and intramural sports programs. There is also a major emphasis on developing these programs for youth.

2. *Policies.* Most schools have formulated policies regarding the health, physical, and recreation education program. These are usually approved by both public and private institutional administrative officers. In most cases no attempt is made to review these policies with other institutions or in terms of the current literature on standards for the administration of programs.

In general, policies are developed democratically by the departmental faculty, although autocratic administration still exists. Modern educational philosophy has made progress and the emphasis is strongly opposed to autocracy.

3. Finance. In most instances, the financing of the department is similar to any other department in an institution, but it is still a practice in some institutions to finance athletic programs separately. In these situations an athletic department is usually separate from the department of health, physical, and recreation education. It is common to find institutions with the financial structure too limited to develop acceptable programs. Most budgets are usually prepared by department administrators.

4. Programs. In physical education the emphasis is on the athletic program, although the present attitude of educators is strong against such emphasis. In institutional programs, staff personnel engage in physical education activities ranging from no time to a provision up to 10 hours per week. These activities are usually organized into those required of the students, and those, such as intramurals and athletics, in which students participate voluntarily. Generally, sport activities constitute the major portion of the program. Selection of recreational activities is too often based on time and facilities available rather than on age, sex, and need requirements. Guides are available for the planning of the programs of health, physical, and recreation education, but in many cases are not used. Health teaching time allotment varies from zero to five hours per week. Special programs are sponsored for the handicapped in many institutions and an attitude is found toward developing such programs.

The programs are usually developed for the group, and individual consideration is not in general practice.

5. Personnel. In the majority of institutions the programs of health, physical, and recreation education are a one-man affair. It is a common practice, however, to assign coaching duties and recreation responsibilities to academic personnel having had athletic experience as players. Health teaching duties are usually assigned to physical educators and to nurses. Sometimes science, social studies, and home economics teachers carry out health instruction.

Management and supervision

1. Budget. Budgets in large communities are prepared by a central office and reviewed by institutional personnel; in some cases they are prepared by the institution and reviewed by a central committee. In small communities the budget is usually determined by the president, superintendent, or officers having institutional responsibility to the board. Occasionally, the director of physical education prepares the budget representing his needs.

2. Office management. In most institutions, the director of health, physical, and recreation education is an administrator. His responsibilities include the preparation of reports on departmental activities, selection and assignment of personnel, conduct of programs of health, physical, and

recreation education, attendance at public meetings, and conduct of public relations programs, as well as other duties related to program administration. These duties are usually too numerous; thus the quality of work suffers.

3. Supervision. Due to the numerous duties, supervision of the program is usually neglected. In some communities special supervisors are employed to help teachers and leaders improve the programs, but, at times, the teachers and leaders resent practices employed by supervisors.

4. Maintenance. Maintenance personnel are employed in all institutions, but in most this staff is too limited. This is particularly true in physical education and recreation because of the many maintenance duties involved in the care of fields and gymnasias.

Coordination. Directors of health, physical, and recreation education at the local, district or state, and federal levels are attempting to coordinate programs in various institutions to encourage optional utilization of programs, facilities, and equipment, for the benefit of the entire population. In this respect practices are far from adequate. Coordination within institutions is also part of the duties of the administrator. This coordination includes programs, facilities, and, particularly, personnel.

History and Trends

Primitive Man

1. Factors influencing professional activity. During this early period influencing factors were largely religious, geographic, and economic. Religious and geographic influences were strong.

2. Forms of professional activity. Activity was centered in the family and tribe.

3. Professional contributions. These were largely social contributions to the improvement of family and tribal living.

Biblical Period (2000 B.C. to 600 B.C.)

1. Factors influencing professional activity. These factors were primarily religious, economic, and geographic. Activity concerned with physical survival was stressed.

2. Forms of professional activity. There was no organized activity except that found in the family.

3. Professional contributions. Religious leaders discouraged physical and recreational activities. Some sports were developed, including swimming, hunting, and wrestling. Music, dancing, and games were the dominant recreational activities. Early sanitary codes emphasized desirable health behavior.

Grecian Period (600 B.C. to 90 A.D.)

1. Factors influencing professional activity. Military influences were strong. Major emphasis was on the care of youth from ages 6 to 18.

2. Forms of professional activity. Preparation was for military duties

and gymnastic activity and camps were part of the program. Physical activities stressed survival of the individual.

3. Professional contributions. The "sound body" concept was in evidence. Harmonious development of the body was a military prerequisite. Recreation was centered around religious festivals.

Roman Period (90 A.D. to 1300)

1. Factors influencing professional activity. Military influences were strong and education was conducted in homes and military camps. Health measures were largely of governmental origin.

2. Forms of professional activity. There were some organized programs of health and physical activities, usually conducted by military leaders. Professional entertainers made some contribution to recreation through their performances to large groups of people in urban areas.

3. Professional contributions. Body building was emphasized as preparation for war. Gymnastics and dancing developed during this period. Schools included physical activities as part of military training.

Middle Ages (600 to 1600)

1. Factors influencing professional activity. These factors were mainly monastic regulations and restrictions. A scholastic emphasis was noted in this period.

2. Forms of professional activity. The monastic regulations required manual labor, and physical activity was in preparation for knighthood.

3. Professional contributions. There was continued practice on preparation for war and military activities. Scholastic influences reduced the importance of physical activities. Development of mind and spirit was all important. Asceticism was a dominant force and it encouraged body mutilation for the good of the soul.

Renaissance and Reformation

1. Factors influencing professional activity. The religious and economic influences were strong.

2. Forms of professional activity. The court school included physical exercise—swimming, boxing, fencing, riding, and dancing. The health importance of physical training was emphasized and the value of hygiene and exercise was stressed along with mental and moral training. Recreation and health were recognized as essential for normal growth and development.

3. Professional contributions. There was a gradual revival of interest in education, with health education included as an essential part. Games and athletic contests were organized. Outdoor life was considered important in physical, mental, and moral development.

Colonization (1620-1790)

1. Factors influencing professional activity. Geographic, climatic, and religious influences were strong. Generally, amusements were forbidden,

particularly on the Sabbath. Play concept was not tolerated. Rigid sanitary laws were observed by the Puritans.

2. Forms of professional activity. Old world school practices had influence on programs of education. Public schools, as well as parochial, were established. Little physical activity was included in organized form, although traditional games were played. Medical practice was rudimentary and unscientific.

3. Professional contributions. Manual labor necessary to provide the needs of life dominated this period. Cultures of mother countries were influential, and there was little contribution to physical programs. Recreation was conducted within the family unit, and health concepts were influenced by old world practices.

National Period (1790-1860)

1. Factors influencing professional activity. Religious, economic, and geographic factors had strong influences on health, physical, and recreation education.

2. Forms of professional activity. Drill and discipline prevailed at this time. School programs of athletics were conducted by students and gymnastics were included for both boys and girls. Outdoor recreation games gained prominence. Medicine assumed a new, professional outlook.

3. Professional contributions. Establishment of health, physical, and recreation programs in schools and military academies took place in this period. The Jahn system of gymnastics was introduced, and the physical program was reorganized as part of the school program. During this time the first YMCA was established. The training of nurses and the inclusion of anatomy and physiology in school curriculums were emphasized.

Immigration Period (1860-1900)

1. Factors influencing professional activity. Land-grant colleges were established, and in order to get land as an endowment, military instruction had to be included in the program. Military, religious and economic influences were strong. Ohio passed the first state law prescribing physical training. Organized summer camping was started, and state-wide programs in health teaching were inaugurated. Public recreation was first begun in the Sand Gardens of Boston in 1885.

2. Forms of professional activity. Drills were in common practice, and gymnastic activities usually constituted the program of activities. Sports and athletics were also included and began to be more completely developed. Golf, archery, baseball, roller skating, and croquet were introduced as recreation. Playground activities for children were started.

The influence of professional activities was beginning to be felt as new organizations developed and colleges introduced courses in the special areas. Increased emphasis on physical education and health was brought about because of the lack of man-power for military service.

3. Professional contributions. The first college department of physical education was established at Amherst and the intercollegiate association of Amateur Athletics of America was organized. Gymnasiums were constructed, and the American Physical Education Association and the Amateur Athletic Union were organized. The first physical training program in the public schools was also begun in Kansas City. Gymnastic societies were active in many cities. Physical training was generally accepted by the churches, and this had a tremendous influence upon the promotion of personal health.

1900-1918

1. Factors influencing professional activity. Legislative influences were prominent, since most states passed laws requiring physical training in the public schools. Military influences also existed. The federal government increased participation in health activities. Geographic and economic influences also played a part in the development of educational programs. There began to be greater emphasis on recreation at the community level.

2. Forms of professional activity. Physical training and athletics were fast becoming a part of educational programs. These included gymnastics, dancing, military drill and marching, and sports. Guides for health teaching were introduced and more recreational services were established.

3. Professional contributions. Emphasis in physical training was placed on physical fitness. The Intercollegiate Athletic Association was established, and dancing and folk dancing movements developed. Draft statistics showed the physical unfitness of American men and influenced state legislatures to demand more emphasis on physical education and health instruction in the schools. Recreation programs increased in suburban areas.

1918-1930

1. Factors influencing professional activity. Governmental, military, and economic influences were among the most prominent during this period.

2. Forms of professional activity. The gymnastic and athletic programs were the most common in schools and other agencies. Physical fitness emphasis was the most prominent in health, physical, and recreation education programs. Nationwide emphasis was given to child development and health. Recreation emphasis was on children's programs.

3. Professional contributions. The American people developed athletic and play interests more strongly. People had more leisure time, and professional organizations prepared them to use it constructively.

1930-1940

1. Factors influencing professional activity. Governmental and economic influences were very strong during this period. It was a period

of economic depression and the federal government gave financial support to communities and their educational programs.

2. Forms of professional activities. Emphasis was given to education and recreation for carry-over values. A strong program of sports activities was started in this period, with a decrease in emphasis on gymnastics and greater emphasis on recreation programs. Professional preparation for physical and health education leadership became part of college curricula. Certification requirements were established in many states. Emergency programs such as PWA, WPA, and NYA stimulated the acquisition of recreation facilities, particularly state parks.

3. Professional contributions. Preparation of leaders for health, physical, and recreation education received emphasis, and there was a development of balanced programs that took into consideration individual needs. The relationship between health, physical, and recreation programs was strengthened. Government-sponsored programs of physical education and recreation took place.

1940-1950

1. Factors influencing professional activity. The Selective Service law was passed. It exerted strong military influences on health, physical, and recreation education. Armed services physical training and recreation programs had direct influences on school and community programs. Legislation was passed for physical education and health examination requirements in the schools. Economic influences were favorable for program development.

2. Forms of professional activity. Physical fitness programs were heavily stressed. Postwar programs placed heavy stress on sports, athletics, recreation facility expansion, and health education. Public recreation became more important.

3. Professional contributions. Greatly increased numbers of personnel in health, physical, and recreation education developed in the armed services and following the war. Athletic competitive programs were at their peak. Research in the specialized areas took a prominent place along with other educational programs. There was an increased interest by the Federal Government in education and recreation. Intramural programs received greater emphasis.

Trends in health, physical, and recreation education

1. There is evident an increased use of audio-visual aids for instructional purposes.

2. An increase in teachers' salaries and the number of teachers and leaders is observed.

3. The number of plants for use in specialized area education has increased.

4. Emphasis is on the hiring of academic teachers who can coach one

or more sports in order to relieve teachers of physical education so that they can devote more time to the required and intramural programs.

5. There are attempts at coordination of the health education program with physical education and with the school program in general.

6. Co-recreation activities as part of the intramural and club programs are being emphasized.

7. Recreation is beginning to receive greater recognition. Certification of leaders has gained ground. Professional curriculums for training leaders are being initiated by numerous universities and colleges.

8. Through the establishment of special programs, provisions are being made for the atypical individual.

9. Legislation has increased the time requirements for health, physical, and recreation education in public schools.

10. The development of camping programs as part of a 12 month program of education is being emphasized.

11. An increased emphasis in the athletic program as an integral part of institutional life is being observed.

12. There is a development of a more balanced program of teacher education. Emphasis is on liberal-cultural, and professional education.

13. The number of programs for teacher preparation has increased and these programs are included in a majority of college and university courses. These are numerous at the undergraduate level although development is also at the graduate level.

14. There is an increased emphasis on leisure time values of physical education and recreation as a social activity.

15. There is a trend toward planning the recreation program to fit all groups.

16. A movement toward federal subsidization of school health services is apparent.

17. There is a greater stress being placed on minor sports as recreation.

18. State governments are providing more facilities for recreational activities.

19. Industry is giving more financial support to recreation and health programs.

20. States are beginning to establish separate administration groups in the form of commissions to handle recreation programs.

Professions

Governing influences

1. Economic. Teachers' salaries have increased but do not equal the rise in cost of living. The cost of plants, equipment, and materials has risen considerably during the past few years, and the increase is so great

that many schools are having financial difficulties. Contributions to private schools have decreased.

Education is now looking to the federal government for financial help. Federal assistance for veterans helped many schools by increasing enrollment. Additional federal aid may be given directly to states for student scholarships and other educational uses.

The low salary scale has discouraged students from choosing education as a profession. A decreased enrollment in the teachers' colleges has been noted during the past few years and a shortage of elementary teachers exists.

2. Philosophy. Education is charged with the responsibility of preparing children for world citizenship and peace. This responsibility has not been discharged very effectively in the past, but a trend is in evidence to make education more meaningful in a community. A concern about democracy and its operation is also beginning to take root in the schools.

3. Legislation. The profession is influenced both positively and negatively by legislation. Teachers are protected by tenure legislation in some states and communities, and teacher certification is found in all states but varies in effectiveness. The need exists for federal legislation that will help the poorer states improve educational programs.

4. Political. Political pressures can be both favorable and unfavorable. In many states the department of education has become the victim of political spoils, particularly when the commissioner is appointed by the state governor. Boards of education in some communities have become political activity groups.

5. Military. A strong military influence has been exerted on the profession. For the first time in history, physical education, health education, and recreation personnel have been given professional duties in the military services. Programs conducted by the military are duplicated, during wartime, by community institutions. Educational programs are modified to prepare individuals for military service.

6. Cultural. Special emphasis is now placed on the elimination of intolerance and fostering inter-cultural relationships. The varied cultural backgrounds of people in a community are beginning to be considered when educational programs are planned.

7. Technological. Developments in transportation and communications, particularly in radio and television, have had marked influence on education. Athletic programs, for example, have become more a part of American life.

8. Religious. Religious influences are favorable to the purposes of physical education. Recreational programs and athletic leagues in churches are examples that demonstrate this relationship. Certain reli-

gious groups desire to influence the content in health teaching, health education, and recreation.

Professional organization

1. Standards. The objectives of health, physical and recreation education, and of the profession, are standardized. Some leaders place greater emphasis on certain objectives. They are often stated in a different manner, but are basically the same.

The American Association for Health, Physical Education, and Recreation, a division of the National Education Association, is the official organization of these professions. It serves the profession as a central record agency and disseminates information through publications. It also promotes legislation and establishes policy.

The American Public Health Association and the American School Health Association also service health education personnel.

There is no established professional code of ethics. Professional conduct is developed in local communities by interaction of the teachers and leaders with social and professional groups. Certain ethics are accepted by professional members as unwritten regulations.

Many professional committees are at work on the preparation of standards as they pertain to all phases of the programs of health, physical, and recreation education. Some outstanding work has been done on facilities, curriculum, personnel, and training.

Recreation is organized under two professional groups, the American Recreation Society, a professional leaders group, and the National Recreation Association, a service organization founded by voluntary contributions.

2. Public relations. Public relations activity occurs at the federal, state and local levels. Special programs such as exhibitions, conferences, circuses, and athletic contests are presented for the public. Most of these activities have a favorable influence on the specialized area programs.

3. Influences. Numerous professional conferences are held at the national, state and local levels and are well attended by professional personnel. Programs include all phases of health, physical, and recreation education with the purpose of improving these activities. Elected officers serve these organizations.

4. Research. Research activity is usually conducted by graduate students under supervision. Some research is conducted by university faculties, and several institutions have established research laboratories.

5. Programs. The programs of specialized area education are steadily improving due to better personnel, facilities, and working conditions. Much, of course, needs to be accomplished to reach the desired professional standards.

Professional preparation

1. Recruitment. There has been little organized recruitment of mem-

bers for the teaching profession. During the last few years some effort has been made to encourage qualified individuals to select teaching as a profession. Many promising persons avoid the profession because of low salaries, lack of prestige, and undesirable working conditions. Professional institutions have programs of recruitment and in most instances have standards for admission.

2. Selection. No successful standards for the selection of teachers have as yet been established. Research has gone only a little beyond institutional committee discussions. In general, educators want intelligent, socially well-adjusted individuals as prospective teachers. The instruments used for selection, however, are inadequate.

3. Pre-service education. The trend is toward a five year program leading to a master's degree before teaching certification can be obtained. The curriculum includes about 40 percent general cultural content, about 15 percent professional educational content, and about 45 percent physical education content. This proportion is also true for programs in health or recreation education.

Standards for the program of professional preparation vary greatly in quality. In some instances one staff member conducts the full program. This is grossly inadequate, but no professional standards have as yet been established to eliminate such practices.

Masters' and doctorate programs are being conducted; the former in about 100 institutions, the latter in about 20. These also vary greatly in quality. Common degrees are doctor of philosophy, doctor of education, and the special degrees of doctor of recreation and doctor of physical education. Generally, special degrees are not favorably accepted. Inclusion of one or two minors in academic subjects is common practice since many jobs require prospective candidates to teach two or more areas.

4. In-service education. In the larger communities in-service experience is common. Extension courses and special institutes are parts of in-service programs.

5. Certifications. Most states have teacher certification regulations, but many are inadequate, and no two states are alike in their standards. Some states have only a general certification with no standards for special subjects such as health, physical, or recreation education.

6. Accreditation. General accreditation is the practice. If a university meets the standards of an accrediting agency, such accreditation is applied to all programs. This practice has been found unsatisfactory, particularly as evidenced by professional preparation programs in health, physical, and recreation education. Accrediting agencies are at the state, regional, and national levels; the trend is toward the elimination of regional, and national agencies. Committees are now at work with the American Association for Colleges of Teacher Education establishing accreditation requirements.

Responsibilities

1. Internal. There is no one established set of standards for the responsibilities of a professional health educator, physical educator, or recreation leader; therefore these standards vary with the institution and the community. Personal activities are restricted in many communities, and certain duties to the community are generally expected of the teacher.

2. External. These duties go beyond the normal professional duties and include those of a citizen. Much is expected of the teacher. In most cases the teachers assume the responsibilities of a citizen and participate actively in community life.

CHAPTER 6

Major Problems—Problems Needing Solution

The most valid test of an individual's knowledge and understanding of education is his ability to state the problems that exist therein. This is true in all phases of educational specialization; one's knowledge and understanding of health, physical, and recreation education is, therefore, the basis for the identification of problems that need to be solved before professional work may be conducted in an effective manner. It is necessary to understand how these activities contribute to the individual and to society.

Viewing any special phases of education according to the problems is a fundamental part of one's education. Such education represents the basic preparation needed in order to become an effective teacher, leader, or administrator. Since a standard solution is seldom applicable, educators must be able to recognize a problem and find a valid solution. This is the fundamental philosophy underlying this book, and it accounts for the inclusion of problem courses in all professional curricula.

Problems cannot be identified and the nature of the problem established unless a scientific basis or framework is constructed that can guide an individual's judgment. This is true whether statements are based on experience or whether the problems are identified by a systematic analysis, or on a theoretical level. In both instances the fundamental framework and steps to be followed are the same. A suggested approach is outlined as follows:

What are the functions of the profession or duties constituting health, physical, and recreation education?

Unless one knows and understands what duties are to be performed in these special fields, the starting point for problem identification is missing. Such analysis is based on a philosophy that maintains the problems in the field are those that are found in the conduct of the activities characteristic of the profession. The more detailed the description of the functions or duties, the more specific the statement of problem becomes.

Chapter 3 presented the functions of health, physical, and recreation education in nine divisional categories. These divisions are considered fairly complete for all duties in these three fields. The sub-divisions of the nine major categories are normally complete to the second or third order of the function. One may continue the sub-divisions to include all duties, regardless of their magnitude, but the statements of functions contained in Chapter 3 are developed sufficiently to serve as the basis for the identification of the major problems that exist within each function. Duties that fall into the third or fourth sub-divisions are not considered to be major problems confronting the professions. The philosophy of problem solving is one also of beginning with the major or more basic problems, since the nature of the minor problems is not determined until the major problems are solved. Also, this philosophy yields a greater contribution to the development and improvement of the profession.

How should the functions of health, physical, and recreation education be performed?

In problem identification it is not only necessary to know and understand what the functions or duties are, but also *how* these duties should be performed according to the *best* educational standards. The standard will determine the *nature* of the problem. The higher the educational standards, the greater the *magnitude* of the problem. When standards are established, it is important for planners to consider the possibility of realizing these standards; they should be within reach.

Statements on how the functions of a profession should be performed must start with generalized statements (principles) that point to the direction the functions should take. These principles may be further defined in terms of quantitative statements which indicate "how much" ought to be achieved in each function or duty. They then become standards. Statements of principles have been presented in Chapter 4. These statements will serve as one reference (the upper level) when the student is engaged in the identification.

In most instances the statements are in terms of principles and not standards. It is not deemed desirable to present standards without considerable study. Furthermore, standards are not always applicable to all situations, and therefore cannot always be generally constructed.

This book is designed for a general and full consideration of these fields. For further development, reference should be made to the writings in the field for information on desirable standards for each principle and for each application. Those standards may be arbitrary, or based on fact, and in some instances constructed to apply only to a particular institution.

The principles presented (Chapter 4) are supported by as much evi-

dence as is available. These principles are considered to be desirable directions for the conduct of professional activity. They are generally applicable, regardless of the local setting.

How are the functions of health, physical, and recreation education performed in practice?

The final test of the strength of a professional field of activity is how effective it is in practice. For example, to what extent do health, physical, and recreation education contribute to the development, survival, and adjustment of the individual and society? Do they serve to the limits of their potentialities and standards, or do they strike at a lower reference point (the principles serve as the upper level)? Knowing the *duties or functions*, that is, knowing what *should be* the performance of duties, and knowing *what is* the current practice (the lower level) in the performance of duties, constitutes the minimum information needed for the identification of any problem. This will also reflect the *nature and magnitude* of the problems.

If it is found that the practice meets the principle or standard, a problem does not exist. If, however, the practice does not measure up to the principle, the problem exists in whatever magnitude is indicated by the standard. In instances where practices are expressed in quantitative terms as well as the standard, the size of the problem may also be expressed quantitatively. For example, if it is found that time allotted for physical education in the public secondary schools ranges from none to five periods per week, with an average of two periods per week, and if the standard is five periods per week, the difference expresses the size of the problem. The frequency of practice will further define the quantitative nature of the problem.

The practices in health, physical, and recreation education, which will serve as a reference for the presentation of the problems in this chapter, have been presented in Chapter 5. These practices are presented as illustrative practices, principally to establish the procedure. In like manner *the problems which are presented in this chapter are for illustrative purpose, and although these problems now exist and are considered to be the major problems, they will eventually be solved, and new problems will no doubt appear.* In both instances (practices and problems) the statements are considered to be situations that are now found in these fields.

In what way may problems in health, physical, and recreation education be stated so that they are valid in nature and magnitude?

As indicated previously, the most enlightening educational activity is the presentation of statements of problems that represent the problem exactly as it exists. In graduate seminars long debates are often waged on disagreements that are found when a problem is defined. Not only

is it essential that a proper frame of reference be used (steps 1, 2, and 3), but it is essential to use words or phrases that are descriptive of the *nature* and the *magnitude* of the problem.

The nature of the problem is expressed by the use of the terms what, why, how, when, and where. In some instances, these descriptions are sufficient since knowledge about the magnitude of the problem may not be necessary. However, in other instances the magnitude of the problem must be indicated and, therefore, tools of presentation are needed. These tools are presented in this chapter.

The *nature* of a problem is described and presented by use of the following terminology:

"What" problems. This indicates that the *composition* of the phenomenon is not known. E.g., What are the elements of a testing program? Knowledge in this case is desired on "what to test."

"Why" problems. This indicates that the *reason* for the phenomenon is not known. E.g., Why is it necessary to include measures of muscular strength in a measurement program if skill tests are also administered? Knowledge is desired, in this problem, on what additional information is gained by strength tests in the presence of skill tests.

"How" problems. This indicates that the *procedures* on the conduct of the phenomenon is unknown. E.g., How should a measurements program be conducted in a secondary school for boys? Knowledge is desired, in this example, on the organization and conduct of the measurement program.

"When" problems. This indicates that the *time* for the phenomenon is unknown. E.g., When should emphasis on the physical education program be placed on organic development? Knowledge is desired on relative emphasis of activities that yield organic outcomes. Should this come early in the public school program or during the latter stages?

"Where" problems. This indicates that the *place* for the phenomenon is unknown. E.g., Where should recreation facilities be located in a community? This problem concerns location—should facilities be developed in congested areas where space is small, or at a distance from the population where space is plentiful?

It is recognized that problems may be developed in a valid manner by one or a combination of descriptive terms. Whatever the nature, words must be selected to yield an adequate description. For example, *what* are the elements of a measurement problem, and *how* may they be applied in a public school program of physical education?

It is sometimes necessary, for a complete description of a problem, to indicate along with the nature, the *magnitude*, or the problem described in quantitative terms. In this connection the fundamental concepts descriptive of *amount* are applied. Quantitative concepts may also be used

in connection with terms expressing the nature (qualitative) of the problem. In fact, many problems are both qualitative, and quantitative, hence data are needed to conduct the problem-solving activities on a valid basis.

The quantitative terms used to describe problems in education may be classified as *absolute* and *relative*. The absolute terms of quantitative description are made without any reference to other items. Relative terms are those descriptive on a comparative basis.

Absolute quantitative description. Number, size, force, reaction, heat, light, weight, volume, time, mass, distance, and space, are related terms.

Many of the problems in health, physical, and recreation education are quantitative. The nature of the quantity, however, will differ. In some problems the quantity is number (e.g., How many shots in basketball are made from a certain place on the floor?), size (e.g., What body structure is most highly related to success in the pole vault?), and force (e.g., What is the rate of human reaction?). Any term that is descriptive of amount represents the potential vocabulary for quantitative problem description.

Relative quantitative description. Description on a comparative basis.

1. *Percentage.* The description is made according to the proportion of an item in terms of a whole. E.g., What percentage of the time for the health education program should be spent on measurement and evaluation?

2. *Range.* The description is made according to the highest and lowest value. E.g., What are the fastest and slowest times in running 100 yards in Olympic competition?

3. *Central tendency.* The description of items is in terms of averages. E.g., What is the average loss of time in industry due to illness?

4. *Variability.* The description of items is in terms of dispersion, or spreading about a given point, or in terms of each other. E.g., What variability within a group in basketball skill abilities makes it necessary to subdivide the group for effective instruction?

5. *Distribution.* The description is made according to the nature of the massing or frequencies of data. E.g., What are the comparative differences of the distribution of chinning scores for junior and senior high school boys?

6. *Relationships.* The description is made by correlating items. E.g., What is the correlation (or quantitative relationship) between the broad jump and leg power?

7. *Prediction.* The description in quantitative terms is made according to what information may be gained, given some data about a phenomenon. E.g., What is the predictive value of measures of muscular strength for tennis and football playing ability?

8. *Causal*. The quantitative description is made by establishing cause-effect relationship. E.g., What are the quantitative values for the various causes of staleness in sports?

9. *Factors*. The quantitative description is made by establishing the factors which constitute a phenomenon. E.g., What are the factors, and their relative importance, that constitute playing ability in basketball?

10. *Probability*. The quantitative description is presented in terms of usefulness of the data in future events. E.g., What is the possible value of individual ability in the basic elements of motor ability and eventual success in baseball?

The description of a problem in many instances involves the use of both qualitative and quantitative terminology. The illustration (Figure 4) demonstrates that all combinations are possible when problems in health, physical, and recreation education are to be described. The combination or single descriptive term used will be determined by the problem that exists, and that is to be described so that research methods will be applied according to the exact nature of the problem. A physician making an incorrect diagnosis is comparable to an educator making an incorrect identification and description of a problem that exists. This step is probably the most fundamental one in the successive steps of problem solving.

Description of the <i>Nature</i> of Problems		Description of the <i>Magnitude</i> of Problems
1. "What" problems	←	1. Absolute: number, size, distances, etc.
2. "Why" problems		2. Relative a. Percentage b. Range c. Central tendency
3. "How" problems	→	d. Variability
4. "When" problems		e. Distribution
5. "Where" problems		f. Relationship
		g. Prediction
		h. Causal
		i. Factors
		j. Probability

FIGURE 4' Terminology Relationships on the Description of the Nature and Magnitude of Problems.

Illustration of Some Current Problems in Health, Physical, and Recreation Education

Workers in health, physical, and recreation education must perform various tasks, in whole or in part, in order to accomplish the purposes or objectives. These tasks and their relationships with professional principles and standards determine the problems that face professional

workers. The classification of problems is made in terms of the functions which workers must perform (Chapter 3). These are: establish directions (Interpretations) (Objectives); find sponsorship and a place of operations (Community Organizations and Auspices); understand people (People—Status, Educability, and Capacity); conduct activities (Programs); lead individuals and groups (Leadership); establish facilities, time, etc. (Administration); prepare records and interpret (History and Trends); and determine standards (Professions). Figure 4 represents a guide for expressing the problem that exists, after, of course, a comparison is made between the functions (Chapter 3), the current practices (Chapter 5), and the operational principles (Chapter 4).

The terminology most appropriate will be determined by this comparison. An illustration of the use of both quantitative and qualitative terminology is contained in Figure 5, using as an example the function of selecting activities for physical education. Figures 4 and 5 should serve as a framework for each phase of professional activity, in order that the exact nature and magnitude of the problems may be established. The existing problems, presented in the following sections, follow this form of reference.

HEALTH, PHYSICAL, AND RECREATION EDUCATION PROBLEMS

Interpretations

What philosophy or combination of philosophies should serve to direct general education and its components, health, physical, and recreation education, in order that education may prepare individuals for contemporary life? How may the philosophies, which describe contemporary life, be translated into educational philosophy and health, physical, and recreation education philosophy, in order that subsequent procedures may yield an optimum contribution to this end?

General education. What educational philosophies are most highly correlated with the problems of contemporary life, and how may these philosophies be established as the directing forces of American education? How may these philosophies be translated into objectives for American education? How may the objectives for American education be interpreted by social organizations in order that their unique contributions may be preserved and optimum contributions made to the individual and society? For example, what are the re-directions essential for the YMCA, in order to contribute optimally to contemporary life?

What information is needed about individual status, ability, educability, and capacity in order that educational programs may be effectively planned? What and how may educational programs be planned in order that individuals may be prepared for living in a society and

The Nature of Problems							
Functions* (Chapter 3)	Operational Principles (Chapter 4)	Current Practices (Chapter 5)	What	Why	How	When	Where
I. Interpretations V. Programs A. Governing influences B. Educative 1. Selection a. Objectives b. Variety c. Motivation d. Validity e. Growth f. Development g. Differences h. Interest i. etc. 2. Evaluation 3. Adaptation C. Protective VI. Leadership IX. Professions	V. B. 1. <i>Selection of Activities</i> : When activities are selected for the program of physical education, all elements related to individual outcomes and the process of coordinating activities must serve as a basis for selection on the strength of their values in reaching the highest level of outcomes for individual development, leadership and adjustment.	V. B. 1. <i>Selection of Activities</i> : A scientific basis for the selection of activities according to individual and group needs and according to the potential values of activities does not exist in practice. Scientific criteria for the evaluation of activities are inadequate. Personal interest serves, in the main, to select activities without due consideration given to product and process outcomes.	What elements should serve as the basis for the selection of activities for the program of physical education?	Why is the element "individual differences" a fundamental basis for the selection of activities according to the physical, mental, social, and emotional characteristics and abilities of the individual?	How should all related elements be <i>applied</i> and <i>weighted</i> when used as a basis for the selection of activities?	When, in the process of program planning, should each element be given emphasis in selecting activities for physical education programs?	Where, according to the various grade levels, should emphasis be placed on the elements for selection of activities?

The Magnitude of Problems											
Functions* (Chapter 3)	Relative										
	Absolute (number, size, distance, etc.)	Per- centage	Range	Central Tendency	Vari- ability	Distri- bution	Rela- tionships	Predic- tion	Causal	Factors	Proba- bility
I. Interpretations V. Programs A. Governing influences B. Educative 1. Selection a. Objectives b. Variety c. Motivation d. Validity e. Growth f. Development g. Differences h. Interest i. etc. 2. Evaluation 3. Adaptation C. Protective VI. Leadership IX. Professions	How many elements need to be considered in order to fully meet the characteristics and needs of the individual for develop-ment and adjustment?	What percentage weighting should be given to the various ele-ments for the selection of activities according to grade levels and sex differences?	What range of ability is considered advisable in programs of physical education in order to gain optimum individual outcomes?	Because it is necessary to give consideration to all significant elements when selecting activities, what is the significance of an average consideration given to all elements?	To what extent should amounts of variability in each of the elements be considered in selecting activities; i.e., should special consideration be given to elements that are highly variable, such as interests?	What is the nature of the distribution of group interests, and how may this information be applied to the selection of activities?	What are the relationships of each element to the activities of physical education, and what is the relative importance of each element?	What is the prediction value of the various elements used in the selection of physical education activities, and individual and group outcomes?	Is the interest element when used in the selection of activities constantly related to the <i>nature</i> and <i>amount</i> of outcomes resulting from programs of physical education?	To what extent are the various elements used for the selection of physical education activities independent factors? What are the unitary components?	What are the probability values for each element on the basis of a criterion of optimum outcomes for the programs of physical education?

FIGURE 5. The Framework for Problem Identification (Illustration of Procedures for the Identification of the Nature and Magnitude of Problems).

* The illustration is on the programs function in physical education (selection of activities). This procedure illustrates the steps needed in order to successfully identify the nature and the magnitude of the problems which hinder successful educational operations.

prepared to make the most effective contribution to the solution of the problems of society? What leadership is needed and how may these leaders be selected and interested in education as a service to humanity? What educational programs are needed for the most valid preparation for the solution of problems of the individual and society? How may leaders be united into a professional organization in order that professional practice may be improved as well as the conditions of the profession for most effective work?

What are the interpretations and implications of history and trends in education for contemporary educational activity? How may administrators be prepared so that they may perform their tasks on planned educational programs for optimum results according to contemporary individual and societal problems?

Health, physical, and recreation education. What is the nature of health, physical, and recreation education according to modern goals of education, and how may these special programs of education become an integral part of the program of general education and thereby contribute to its goals?

1. Interpretations. What philosophical basis should be established for health, physical, and recreation education in light of contemporary life, and how may this philosophy or these philosophies be made a directing force for programs of specialized education?

2. Objectives. How may the objectives of health, physical, and recreation education be re-defined or re-directed in light of modern educational philosophy and contemporary life?

3. Community organizations and auspices. How may the various community agencies conducting programs of health, physical, and recreation education be coordinated in order that an optimum effort may be exerted for the solution of the community problems?

4. People—status, educability and capacity. What are the characteristics which need to be known about the individual and society, according to contemporary educational philosophy, and how may these characteristics be measured?

5. Programs. What re-directions are needed for the programs of health, physical, and recreation education in order that optimum contributions may be made to the contemporary goals of specialized education?

6. Leadership. What are the qualifications for leadership in health, physical, and recreation education according to contemporary philosophy?

7. Administration. What are the re-directions for the administrator of health, physical, and recreation education, according to contemporary life and educational philosophies?

8. History and trends. What is the correlation between modern trends in health, physical, and recreation education and contemporary life and educational philosophies? How may health, physical, and recreation edu-

cation be re-directed in those instances when trends are not correlated with contemporary philosophy?

9. Professions. What are the modifications needed in professional preparation and other professional activities in order that health, physical, and recreation education may make maximum contributions to the individual and society according to contemporary philosophy?

Objectives

What should be the re-direction of the objectives of health, physical, and recreation education, and what additional objectives may be identified according to the modern purposes and goals of education?

Governing influences. How may the unfavorable influences exerted on health, physical, and recreation education objectives be eliminated and the favorable influences encouraged in order that a maximum contribution of these programs may be made to the individual and society?

1. Legislative. What is the nature of the influence of national, state, and local legislation and regulations on the formulation of the objectives of health, physical, and recreation education?

2. Political. How can the undesirable political influences on the programs of health, physical, and recreation education be eliminated, particularly those influences that overemphasize the athletic program at the expense of a balanced program? What should be the nature of political activity on the part of educators?

3. Economic. How may the unfavorable economic influences be eliminated so that when objectives are formulated, a full measure of the potentialities of these phases of education may be proposed?

4. Social. How may the unfavorable social influences on health, physical, and recreation education be eliminated, and the desirable influences, such as the improvement of human relations and social objectives of education, be perpetuated? How may the program of health, physical, and recreation education become one of total influence to the community, rather than of benefit for a few? How can social needs be met through planned objectives for health education? How can social needs be incorporated into statements of objectives?

5. Religion. How may the purposes of religious agencies in a community be incorporated, or considered in accomplishing objectives, into statements of objectives for school and agency programs of health, physical, and recreation education? How may the moral and ethical objectives of these programs become established according to the full potential worth of these activities? How may the unfavorable influences on some of the objectives of health education be eliminated? How can health concepts be incorporated into religious objectives?

6. Public relations. How may the various media for public relations be utilized by educational leadership for the promotion of full programs

of health, physical, and recreation education in order that the community may know the benefits of the outcomes of such programs? How may leadership be prepared to understand the full significance of public relations, and learn to use all media to this end?

7. Geographic. How may geographic influences, such as climate and topography, that affect the formulation of objectives be eliminated so that a full measure of the potential values of health, physical, and recreation education may be gained?

8. Military. How may the limited emphasis placed on physical education during war be removed in favor of a full program of physical education in order that a full measure of outcomes may be gained? What are the nature and scope of the peacetime and wartime military program of physical education? What is its relationship to civilian programs? How may the recreation and health programs, developed by the armed services, be incorporated with the objectives of civilian peacetime programs?

9. Technological. What are the nature and scope of the health, physical, and recreation education programs during the present age of technological developments and advances? In what way does American life change—physically, mentally, emotionally, and socially? How may these changes be correlated with the program objectives of health, physical, and recreation education in order to continue favorable growth, development, survival and adjustment of people?

Components of life's span. How may health, physical, and recreation education be developed so that the contributions to development, survival, and adjustment may be gained by all people from birth to death? What are the nature and scope of these programs for all age levels? How does health, physical, and recreation education contribute to the objectives of effective and full living? What are the objectives according to the scope of these programs? What is the nature of these objectives when correlated with the needs of people?

1. Growth and development. How may the facts on growth and development be gained, and those available be used in correlation with the formulation of the developmental objectives of health, physical, and recreation education? What is the scope of the objectives according to this criterion? What facts are available to support current statements of objectives in these fields? What modifications and additions in the developmental objectives will result when valid and complete facts are known about growth and development of the individual?

2. Survival. How may the survival values of health, physical, and recreation education be established on a factual basis, beyond what is now known, and how may these objectives become a part of the operating programs of health, physical, and recreation education?

3. Adjustment. How may the objectives for health, physical, and rec-

recreation education according to the contributions on the adjustment of the individual to his animate and inanimate environments be established in fact? What are the nature and scope of the adjustment objectives according to the physical, mental, emotional, and social goals of education? What is the nature of the influences of animate and inanimate environments? How may these environments be modified to assure favorable health, physical, and recreation education outcomes?

Formulation of health, physical, and recreation education objectives. How may the formulation of the objectives by all agencies conducting programs be prepared according to the facts on the contributions of health, physical, and recreation education, and according to the full potential worth of these programs? How may these objectives be coordinated in order that an optimum contribution to community living may be achieved?

1. Professional objectives. To what extent are the objectives prepared by professional organizations supported by experimental facts, and to what extent do these statements establish the full worth of health, physical, and recreation education according to the needs of the individual and society?

2. Institutional objectives. How may the institutional objectives be correlated with professional objectives and still contribute to the unique purposes of the institution? What is the nature of institutional objectives according to their contribution to individual and community needs?

3. Individual objectives. How may the objectives of individuals be directed so that they may gain the full worth of health, physical, and recreation education? What are the individual objectives according to varying needs of the individual and according to his place in society and his contributions to society?

4. Integration. How may an effective integration of objectives (professional, institutional and individual) be made so as to meet more desirably the needs of individuals and society?

Community Organizations and Auspices

How can organizations and agencies involved in the sponsorship of health, physical, and recreation education be established in sufficient number, and for all age levels of service, in a community in order that individuals and groups may have the opportunity and adjustment that will occur through participation in these activities?

Governing influences. How can the unfavorable influences exerted on social organizations and agencies be removed in order that their services to the individuals and the community may be improved? How may new agencies be established in communities in order that the services may be extended to meet the needs of all people for all ages?

1. Economic. How may the economic basis for health, physical, and

recreation education be made adequate so that these services may be made available to the full population of the community? How can the economic structure of the community or country be stabilized in order to eliminate fluctuations with business cycles of depression and prosperity? What is the place of state and national governments in the financing of local public and private programs?

2. Communications and transportation. How may the modern facilities of communication and transportation be most effectively used in order to gain the full results of the potential values of health, physical, and recreation education for the development and adjustment of all individuals and groups in a community? How may the athletic program be incorporated with the total program of general education and physical education and not be developed at the expense of other programs? How may professional groups be brought together at conferences, in larger numbers and more frequently, in order to plan the solutions for the many problems that exist in the conduct of community programs of health, physical, and recreation education?

3. Military. How may the military needs for manpower physically prepared to perform military duties be met, and at the same time prepare individuals for life in a community according to a full measure of the development and adjustment contributions made by health, physical, and recreation education? Are these programs different? What should be the nature and scope of military influences on educational programs during peace and war?

4. Political. How may the unfavorable political influences on health, physical, and recreation education be removed and these efforts redirected to gain adequate provision for these community programs? What is the proper relationship that should exist between the community and social agencies in respect to conduct of programs? How may this objective be gained in many communities where such relationship does not now exist? How can citizens be aroused to their responsibilities for programs?

5. Legal. What should be the nature and scope of the legal structure for health, physical, and recreation education, particularly with respect to state laws? What should be the scope of quasi-legal statutes? How far should private agencies (YMCA, YWCA, etc.) go in establishing regulations for their agencies? Is the legal basis for the programs the most effective means of establishing these programs? How may this influence have the most favorable effect? Should national legislation be encouraged?

6. Population. How can organizations and agencies be established in communities to serve all people regardless of the density of population? How can more agencies be established in those communities where the present services do not meet the needs of the people? What can be done

to establish agencies and services for adults, particularly the old age population?

7. Religious. How may the favorable objectives of religious organizations be implemented by the community for the development of programs? How may these programs be established within religious agencies?

8. Social. How can the social consciousness of the citizens in a community be aroused to aid general education and health, physical, and recreation education? How can citizens be informed of the values of these educational programs as a medium of social activity and education? How can the desirable basic culture of a community be perpetuated through programs?

9. Geographic. How may social organizations and agencies utilize the geographic setting in the development of services? How may unfavorable barriers be eliminated?

10. Technological. How may social organizations and agencies be made aware of the relationships of technological developments in educational and industrial services to the services in health, physical, and recreation education? How may these services be constantly changed in order to meet individual and societal needs?

Organizations and institutions for sponsorship. How may an adequate number of agencies and organizations be established to provide sponsorship for programs of health, physical, and recreation education in order that individual and group needs will be achieved? What organizations and agencies need to be enlarged or established on the national, state and local levels in order to gain proper emphasis in the conduct of these programs? How can these agencies be established so that they operate on a cooperative basis—both public and private?

1. Public. How can the number and services of public organizations and agencies be increased in order to meet the needs of the full community population? How can all agencies be coordinated, on all levels, in order that optimum results will be gained by the program?

2. Private. How may additional private agencies be established for all age levels, in order that the needs of people may be met? What should be the function and scope of these agencies in light of public agencies also conducting or sponsoring programs?

Services rendered to the individual and community. How may the services of health, physical, and recreation education be made available to all individuals and groups in a community? What should be the varying nature of programs because of age differences, sex differences, geographic locations, cultural and social settings? How can individuals be aroused to seek and request such services, and how can they be motivated to desire to pay for such services, either directly or through taxation? How can a sufficient breadth of offerings be made by agencies, to meet the needs and interests of all people?

People—Status, Educability, and Capacity

How may the program of measurement and evaluation be planned, in relation to the other professional functions, in order to yield the optimum results as an aid in achieving desirable outcomes for health, physical, and recreation education? How should this program be planned in order to serve in the establishing of a philosophy for health, physical, and recreation education?

Information desired about people. What physical, mental, emotional, and social information is needed in order to scientifically plan the programs of health, physical, and recreation education according to the needs of the individual and society? What is the nature of this information according to the contribution that health, physical, and recreation education can make to the development and adjustment of the individual and society? How can leadership in these phases of education be informed of the full scope of knowledge of people and the processes of specialized education, and how can this information be used in planning the programs?

1. Physical. What functional and structural information is desired in order to plan the programs scientifically? How should this information be established in relation to the objectives for the programs? To what extent do the present instruments for gaining information meet the intent of the objectives?

2. Mental. What mental or intellectual information is desired about people in order to plan programs scientifically? What contributions do health, physical, and recreation education make to the mental development and adjustment of the individual? How may this information be gained in order to plan programs for optimum outcomes?

3. Emotional. What emotional information is desired about people in order to plan the programs scientifically? What contribution can health, physical, and recreation education make to the emotional development and adjustment of the individual? How may this information be gained about people and what are the processes that meet this objective?

4. Social. What social information is desired about people in order to scientifically plan the programs? What is the sociology of health, physical, and recreation education, and how can this information be gained about people? What are the processes of gaining this objective through programs?

Factors that influence and limit the determination of characteristics.

1. Governing influences. How may the governing factors or influences (economic, social, political, etc., indicated in Chapter 3) be re-directed to influence favorably the process of gaining information about people so that programs may be planned to gain optimum outcomes? How can

conditions within educational institutions be made conducive to gaining valid information about people? Such factors as time, personnel, and equipment are particular needs for these programs.

2. Instruments or techniques and methods. How can valid instruments for measurement be constructed in order that information gained about people will correlate perfectly with the contributions made through health, physical, and recreation education for the development and adjustment of the individual? What particular abilities, educabilities, and capacities within the physical, mental, emotional, and social categories should be measured? How may valid instruments for the evaluation of the processes of health, physical, and recreation education be constructed? How can these instruments be constructed in order that they may be used in an operating educational program according to existing conditions?

Administrative procedures necessary to gain information about people. What constitutes the duties of the administrator in order to give proper attention to the conduct of the measurement and evaluation program? How should administrators be prepared for these tasks and informed of the significance of such a program?

1. Criteria for the selection or construction of instruments or techniques. Test criteria are known but not often applied; how can these criteria be made a part of professional practice so that instruments are properly selected or more valid instruments constructed? How can these instruments be constructed to meet the conditions that exist in educational institutions, such as factors of time, leadership, and equipment, and yet meet the requirements of norms as well as the criteria of validity, reliability, and objectivity?

2. Test construction. How can provisions for test construction be established on a high technical and professional level in order that instruments will be constructed that will yield valid results when applied to the measurement of the individual or product and the evaluation of the process? How can adequate norms be determined for constructed instruments and consideration given to conditions existing in institutions? How can leadership in health, physical, and recreation education be informed on principles and procedures for construction of teacher-made instruments in order that these may serve as a supplement to standardized instruments prepared by research workers or professional test construction agencies?

3. Organization and administration of the program. How can such factors as the lack of knowledge, insufficient time, lack of facilities, lack of leadership and proper qualifications, and lack of correct procedures of record keeping and analysis be solved in order that the measurement and evaluation program may operate to gain the necessary information? What are the considerations and modifications needed in administration

due to the many varied conditions which exist in institutions and organizations?

4. Use of measurement and evaluation results. How may the results of measurement and evaluation be used in program planning so that optimum results will be gained? How can the results be used for diagnosis, prognosis, educability, and classification in order to establish desirable educational practices in institutions?

Programs

How may the programs of health, physical, and recreation education be correlated with other functions of these phases of education, particularly interpretations, objectives, and people, so that the activities will yield optimum outcomes?

Governing influences. How can the many unfavorable influences, which lead to poor programs and outcomes, be removed and favorable influences substituted?

1. Legal. What should be the extent of the legal or legislative basis for programs, and how may this legislative structure be established so that optimum outcomes will result? What should be the legal structure for private school programs? How should this compare with the legal structure for public education?

2. Economic. How can adequate finances be gained for specialized area education? In what way should school athletic programs be financed so as to eliminate evils sometimes associated with gate receipts?

3. Geographic (inanimate environment). How can the programs of health, physical, and recreation education, and particularly the component athletic program, be promoted without undue concern to geographic conditions? How can indoor facilities be developed in order to eliminate climatic barriers?

4. Facilities. How can adequate facilities be obtained so that a full balanced program may be offered for all groups and ages in a community? What should be the standards for facilities for a balanced program? How should the standards be determined?

5. Public relations. How can an acceptable public relations program be developed for the full program and not only the athletic phases? To what extent should school and other agencies exhibit and demonstrate physical education programs for the public? How can the public be motivated to support community programs of health and recreation?

6. Research. How can research be stimulated both on the student and professional level in order to gain information on the value, according to educational criteria, of programs? How can these programs be financed in order that sufficient depth of knowledge may be gained? What should be the professional, institutional, and individual responsibilities of the research program?

7. Population (animate environment). How can the programs be planned to meet the various interests and needs of the total population? How can the interests of the people be directed to participation in sports and other recreational and physical and health education activities in order that these people may gain needed development and adjustment?

8. Time. How much time should an individual devote to specialized education activities, at the various age levels, in order to gain optimum development and adjustment that will result from such participation? How should this time of participation be allocated?

9. Philosophy and objectives. How may unfavorable attitudes be eliminated and favorable ones strengthened so that optimum contributions may be made to the needs of the individual and society?

10. Personnel. How may the inadequacies of leadership influences on the programs be eliminated and adequate provisions made?

11. Records and reports. How may this influence be reduced to the most essential and valid system so that individual efforts will be directed to the most important and useful activities? What is the relationship of this activity to program outcomes, and how may it be correlated properly?

Educative factors. How can the programs of health, physical, and recreation education be planned scientifically according to stated objectives, according to the needs of people, and according to the potential value of the various activities? How can facts be gained to support the educational value of the programs? What are the influences of these programs on the development, adjustment, and leadership of people—physically, mentally, emotionally, and socially?

1. Selection of activities. What should be the basis for the selection of activities, and how may the criteria for selection be established so that activities may be selected on their merits or potential values on a quantitative basis? How can non-scientific procedures on selection of activities, in common practice, be eliminated?

2. Evaluation of activities. How can scientific criteria be derived that may be used for the evaluation of the potential value of the various activities according to stated objectives? What scientific evidence can be obtained, according to individual development and adjustment, to indicate the value of the various activities?

3. Adaptation of activities. How may selected and evaluated activities be adapted to meet individual and group needs in the various agency and institutional situations to insure optimum outcomes as stated by these agencies?

Protective factors. How may protective procedures be established, in all programs of health, physical, and recreation education, so that educative outcomes may result without detrimental or unfavorable influences? To what extent should the protective factors be controlled?

1. Examination and health services. How can adequate medical exami-

nations and health services be made a part of the programs? How can this examination also become a part of routine procedure for the full population?

2. Classification (activities and participants). What should be the extent of classification for participation in activities? What should be the amount of differentiation made according to age, sex, and ability levels? How homogeneous should the groups become? What is the most valid classification of activities according to a criterion of potential value?

3. Safety procedures. What constitutes an adequate safety program for protection of participants? What should be the limits on time of participation, length of schedules, pre-conditioning period, and equipment standards for avoiding injuries? What should be the responsibilities of health education for the safety education program?

4. Supervision. How can full and adequate supervision be obtained for the community program? What should be the nature of supervision? How should these duties be performed?

5. First aid and safety. How may first aid and safety facilities and procedures be provided for all programs? What should be the duties of the health, physical, and recreation education leaders in the administration of first aid?

6. Legal. What should be the legal protection given the leader so that he may conduct programs without danger of personal liability? What should be the leader's legal responsibility for the participant? Should the leader have liability insurance? Should the participant have accident insurance?

7. Research records and reports. What should be the scope and nature of reports on the protective aspect of the program? How should these reports be established and administered? How can research data be utilized for the protection of the participant and leader?

8. Healthful environment. How can a healthful environment be established for all programs? How can such standards be made a part of the planning for all programs? What is the scope or elements to be considered for an adequate healthful environment?

Leadership

What are the leadership requirements in health, physical, and recreation education, for all individuals and groups in a community, in order that participants may be guided to optimum development and adjustment to the fullest extent possible through these programs?

Characteristics. What are the desirable characteristics for leadership? What elements are correlated with success in each of the various types of leadership?

1. Physical. What are the physical characteristics for success in the various classifications of leadership? To what extent do individuals meet

these requirements with increasing age? What are the limits or minimum physical requirements for leadership? What is the classification of leadership according to physical requirements?

2. Mental. What are the intellectual requirements for the various classifications of leadership? How are these requirements related to the other school or agency duties that leadership will perform? What represents a minimum requirement for effective leadership?

3. Emotional. What are the emotional requirements for the various classifications of leadership? How can the emotional stress placed on the individual in teaching and coaching be reduced?

4. Social. What are the social requirements for leadership? How can leadership, with a below minimum qualification, be prepared in order to meet the social requirements adequately? How can leadership be encouraged to participate in all social activities of the school or community in order that this objective may be fulfilled more completely by the participant as well as the leader?

Classification of leadership. What are the various classifications of leadership according to all functions that are performed by leaders?

1. Advisory. What should be the duties of advisory leadership? What are the types of advisory leadership? What should be the relationships of responsibilities of advisory leadership and administrative leadership? Should advisory leaders be appointed or elected? Should they have stated qualifications for service?

2. Administrative. What are the qualifications for administrative leadership on all levels—national, state, and local? What are the duties of administrative leadership? What should be their responsibilities? To whom are they directly responsible in the agency organization? How can qualities of democratic leadership be developed in all administrators?

3. Supervisory. What are the qualifications for supervisory leadership? What are their duties? How can supervisory leadership be possible for all agencies? To what extent are consolidative and regional groupings a way of gaining supervisory leadership? How does the supervisor perform his tasks at the various age levels and institutional groupings and levels?

4. Instructor and leader. What are the qualifications for instructor leadership and the group leader? How can individuals meet the qualifications on an adequate basis according to the many varied tasks that leadership has to perform? How can instructors and leaders be obtained for all communities and for all groups? What place does voluntary and student leadership have in health, physical, and recreation education? What are their duties and responsibilities? How should they be supervised? What are the types of technician or specialist leadership? What are their duties? What are their responsibilities?

Procedures for accomplishing leadership functions. What are the requirements in knowledge, skills, and abilities of the leader needed to

accomplish his tasks on the highest professional level for optimum outcomes?

1. *Governing influences.* How can factors that unfavorably influence the accomplishment of leadership duties be eliminated? (Examples of such factors are inadequate salaries, unsatisfactory living conditions, community pressures, political pressures, and social requirements.) How can leaders become members of the community and be regarded as citizens with equal rights and privileges?

2. *Knowledge.* What is the scope of knowledge, understanding, and appreciation needed for the various types of leadership? How can the highest level be gained? What are the common factors for all educational leadership, and what factors are specific to health, physical, and recreation education? How can leadership transmit this knowledge, understanding, and appreciation to the participants so that optimum achievement results?

Administration

How can administration gain the desirable conditions for the specialized programs of education in order that these programs may be conducted for optimum outcomes? What are the standards for desirable provisions?

Governing influences. How can the numerous unfavorable influences that affect education be removed, and community efforts directed toward the improvement of the status of programs? What are the standards for community approaches to the various influencing factors, such as economic, religious, political, and legislative? To what extent are these problems local, state, and national in scope?

1. *Legal and legislative.* What represents the nature and scope of state legislation for health, physical, and recreation education? To what extent should legislation be viewed nationally in order to encourage uniform legislation in the various states? What should be the place of federal agencies with respect to legislation? How much local autonomy should be granted health, physical, and recreation education? What components of health, physical, and recreation education should be included in legislation—personnel qualifications, time schedules, facilities? To what extent should regulations be developed for international programs?

2. *Economic.* How can the economic basis for the programs be made sufficient in order that the full values of these programs may be gained in the community? What represents acceptable financial basis for such programs? To what extent should the federal government aid states and local communities in finance? What should be the standards, on the local level, for the expenditure of funds according to the various components of health, physical, and recreation education? To what extent should commercial activities in the community be used as a means of finance?

3. Plant and equipment. What are the acceptable standards for plant and equipment in order to gain optimum outcomes? How can the proper coordination be gained by all concerned with plant construction—the architect, the school administrator, and the specialists in health, physical, and recreation education? How can construction be planned so that the facilities may be adequate for the full use of all members of a community?

4. Personnel. How can sufficient trained personnel be obtained in order to conduct these programs for optimum outcomes? What are acceptable standards for training and number for all levels of administration—international, national, state, and local?

5. Environment. How may the environmental influences exerted on the administrator be evaluated in order to determine educational validity as representing community needs? How may the valid influences be translated into action by the administrator in cooperation with community officials? How can the administrator be made to understand the significance of these influences?

6. Philosophy. How can community needs be interpreted by administrators so that the educational program will be philosophically sound? How may the unsound philosophies of administration be discarded without unfavorable influence on the administrator and the program? What are the sound philosophical influences?

7. Political. How may unfavorable political influences on administrators be eliminated? What are the forms of political activity desirable for the development of programs?

8. Religious. How may administrators of the programs correlate their activities with those of religious organizations and agencies for optimum outcomes for the individual and society?

Organization. What represents the most effective organization for the administration of health, physical, and recreation education, according to the criterion of optimum outcomes? What should be the organizational relationships to other phases of education and educational administration? What should be the relationship between physical education and athletic programs?

1. Objectives. What should be the objectives of the administrator, and how may the objectives be achieved at an optimum level? What should be the nature and scope of the programs to fulfill all objectives? How can a balance be obtained among all phases of health, physical and recreation education in order to gain the most benefit from the provisions made for these programs?

2. Policies. What are the policies for the various phases of health, physical, and recreation education? How can policies be formulated, within a democratic framework, in order to yield the best operational directions for these phases of education? How can autocratic procedures

of policy making that exist in some institutions be eliminated? How can a factual basis for policy planning be established by administrators?

3. Finance. What should be the basis for financing health, physical, and recreation education? How can the athletic program be financed as other educational activities are? How can the commercial exploitations of this program be eliminated as a basis of finance? What are the standards for acceptable finance?

4. Programs. How can the administrator plan the program, according to the limitations exerted, in order to provide balanced programs to yield the most beneficial results for all individuals and society? How can programs be prepared, under present limitations, for the physically or mentally handicapped individual? How can the proper administrative controls be exerted on the athletic program? What is the nature and scope of the controls?

5. Personnel. What are the personnel requirements of the programs? What should be the personnel's duties in order to gain the most from their efforts? How can sufficient personnel be assigned to provide a basis for quality programs?

6. Public relations. What should be the nature and scope of public relations activity for agencies to meet the needs of the individual and society?

Management and supervision. What are the standards for management and supervision of health, physical, and recreation education? How can the standards be defined by the administrator? What are the requirements for factors such as personnel, finance, and facilities?

1. Finance. What represents an acceptable budget for the management and supervision of health, physical, and recreation education? What basis should be used for budget planning? What should be the relative weight given by the final authority when decisions are made on budgets by various departments of education, schools, agencies or municipalities? What place does health, physical, and recreation education have as related to other activities? What authority does the administrator of specialized area education have or should have in budget planning?

2. Office management. What are the office management standards? What part of these duties should be assumed by the administrator? What personnel are needed to perform all duties adequately? What should be the qualifications of personnel? What should be their duties? How should the varied duties be planned and organized for the most effective work?

3. Supervision. How can supervision be provided for all phases of the programs according to acceptable standards? What are supervisory duties? What is the relative importance of the various duties?

4. Maintenance. What constitutes an adequate maintenance staff?

What are the standards for maintenance duties? What is the relative importance of the various duties?

5. Evaluation. What are the criteria for the coordination of management and supervision procedures?

Coordination. How may administrators gain coordination among the various community agencies concerned with the programs of health, physical, and recreation education? How can public facilities be utilized by all agencies in order to gain the most benefit through programs? How can coordination be gained on state, national, and international levels? What personnel are needed to gain the objectives of coordination? What should be the scope of coordination? How may these activities be closely correlated with all community activities? How may the activities be rooted in the needs of people, and met by the full resources of the local, state, and national programs?

History and Trends

How can historical facts be used to plot the direction for all phases of health, physical, and recreation education? How can they be used as a basis for estimating the need for these programs in order to meet the conditions of the individual and society for the most valid solution of these problems? How should these facts be correlated with contemporary problems which face the individual and society?

Governing influences. What is the nature of the various influences on health, physical, and recreation education in the past, and what are the implications of these influences for the solution of current problems on influences? What do the facts yield on influences as to their favorable and unfavorable nature?

1. Legislation. What has been the history of the influence of legislation on the programs? What is the relationship of quality programs and extent of legislative control? What legislation should be enacted for these programs? What has history demonstrated on national influences, state influences, and democratic and autocratic controls?

2. Economic. What is the history of economic influences on health, physical, and recreation education? What are the implications for adequate finance of these programs? What is the relationship of quality programs to finance?

3. Religious. What should be the relationship between religious programs and programs of health, physical, and recreation education, in light of past events and according to contemporary culture, as well as the needs of the individual and society? How can these programs complement each other for an optimum solution of community problems?

4. Geography. How has man been able to conquer his environment in conducting programs? How has man eliminated influences of climate

and other environmental influences that may be unfavorable? How can the geographic location be an aid to health, physical, and recreation education?

5. Military. What has been the nature of the military influences? What should be the influences, in light of these facts, according to modern warfare and military requirements? To what extent should military influences be accepted when planning programs for civilian society?

6. Technological. What has been the influence of technological advances and what should be the influence of this factor? How should programs be modified in light of this factor? What are the implications for the atomic age?

7. Political. What should be the nature of political influences in light of past influences and in terms of contemporary problems of the individual and society? How can the requirements of programs be met through political activity?

8. Government. To what extent has government participated in and exerted influences on health, physical, and recreation education? What have been the favorable and unfavorable influences, and what are the implications for contemporary society in light of current needs for these programs?

9. Social and cultural. How has health, physical, and recreation education been influenced by the favorable social and cultural conditions that exist in a community? What should be the nature of the contribution of these programs in light of past events, and in terms of current conditions?

10. Professional groups. What has been the nature of the influence of various community professional groups on the activities of health, physical, and recreation education?

Forms of professional activity. In light of past programs, what should be the nature and scope of present programs in order to meet the needs of the individual and society more exactly according to the influences exerted? What has history demonstrated on outcomes when cognizance and plans are made according to needs existing in a society?

1. Interpretations. What should be the philosophical basis for health, physical, and recreation education in light of past philosophies, and according to modern needs of the individual and society?

2. Objectives. What should be the present objectives in light of past experiences of the contribution of these programs? Does history provide facts on the validity of objectives? What should be the nature of the change in objectives according to conditions in a society?

3. Community organizations and auspices. What organizations have promoted and conducted health, physical, and recreation education historically, and what forms of sponsorship, public and private, have been given? What are the implications for modern health, physical, and recreation education, and to what extent does sponsorship for these programs

need to be enlarged in order to reach the full population? What purpose has health, physical, and recreation education served in these agencies, and what significance does this have for contemporary agencies? Have those agencies that have survived met the needs of people? If so, how, and what application does this have for new agencies?

4. People—status, educability and capacity. What are the changing concepts about the information desired about people, and how has this information been used for program planning? What are the needs for information about people in terms of current philosophies, and how can programs be planned in accordance with the characteristics of people and in terms of the outcomes desired for these programs? To what extent can the activities meet desired objectives, as viewed historically?

5. Programs. What has characterized changes in programs of health, physical, and recreation education? What has been the basis for changes, and what implication does this have for modern programs? How closely related to individual and societal needs has health, physical, and recreation education been planned and conducted in the past? What should be the nature of this planning in view of past records, facts, and experiences?

6. Leadership. What have been the changing concepts concerning leadership? What is the basis for these changing concepts, and what significance does this have for the selection of leaders for present-day programs? What are the apparent mistakes made in the past on selection of leadership?

7. Administration. What has been the nature of the administration of health, physical, and recreation education in the past, and how do these facts aid in the planning for the administration of modern programs? What methods of the past would seem to have usefulness in current programs?

8. Professions. What has been the form of professional organizations in the past? What aspects of the organizations have survived, and what significance do these aspects have for modern health, physical, and recreation education? In light of past experiences, how can a strong professional organization be developed by professional workers in order that programs may be improved for better outcomes?

Professional contributions. What have been the nature and scope of the contributions of health, physical, and recreation education in the past, and what limitations of these contributions are evident? How may these facts help plan modern health, physical, and recreation education for optimum outcomes?

1. People or product. What has been the nature of the product of programs in health, physical, and recreation education? What are the implications for modern programs?

a. Organic development. How successful have the programs been in

the organic development of the individual? What are the changing concepts about organic development, and what significance does this change have for the modern programs?

b. Skills development. What have been the varying concepts on skills? What has been the basis for planning development? What does the changing concept mean for modern programs?

c. Knowledge, attitudes, and appreciations. What are the historical developments regarding desired knowledge, attitudes, and appreciations about activities, and conditions for the conduct of these activities? What significance does this development have for modern programs?

d. Social adjustment. What have been the social purposes of health, physical, and recreation education? What is the nature of these purposes? Why have changes in these concepts occurred? What are the implications for modern social purposes?

e. Military. What contributions has health, physical, and recreation education made to the military objectives of a nation? How should these objectives differ from civilian objectives? How can health, physical, and recreation education contribute optimally to both military and civilian life?

f. Leadership. What have been the nature and scope of the contribution of health, physical, and recreation education to the leadership abilities of the individual? What have been the varying types of leadership desired? What, in the light of these facts, can health, physical, and recreation education do to contribute to the leadership qualities of modern youth?

g. Economic. What has been the economic worth of health, physical, and recreation education as a profession? To what extent has modern emphasis on sports and professional athletics increased the worth of physical education and recreation? What should be the basic economic direction for health, physical, and recreation education? What economic implications are evident for health education and recreation because of world health and leisure-time problems?

h. Political. What have been the political contributions of health, physical, and recreation education on the international, national, and local levels? What significance do these contributions have for modern health, physical, and recreation education? How can world and national conditions benefit from the contributions of these programs?

i. Educational. What have been the educational contributions of health, physical, and recreation education? What have been the changing concepts of education? What is the significance for current programs?

2. Process. What have been the nature and scope of contributions of health, physical, and recreation education to the processes of these programs—facilities, activities, equipment, personnel, time, participation, research, and environment? What are the implications of these contributions for modern programs and their conduct?

Trends. What factual basis exists for statements of trends in health, physical, and recreation education? To what extent are these trends valid, according to acceptable educational theory? To what extent are the trends caused by unfavorable influences? How can the favorable trends be further implemented so that health, physical, and recreation education may be elevated to higher levels of quality and thereby more acceptable levels of outcomes?

Professions

How can professional workers in health, physical, and recreation education be professionally organized so that contributions to the individual and society may be improved? What should be the nature and scope of the professional organizations? How can coordination be gained with health education groups, physical education groups and recreation workers? To what extent should these three fields be coordinated?

Governing influences. How can the factors that influence the professional organization and functions of health, physical, and recreation education, favorably and unfavorably, be utilized to improve the professional activities?

1. Economic. How can economic stability be established for health, physical, and recreation education? What are adequate salaries, cost of construction, cost of equipment, cost of operations? What responsibility should the federal government assume in financing health, physical, and recreation education?

2. Philosophy. How can health, physical, and recreation education help preserve a democratic form of government and living? How can health, physical, and recreation education help solve national, state, and local problems in order to strengthen the community—local, state, nation, and world?

3. Legislation. What should be the nature and scope of the legislation promoted by membership or workers in health, physical, and recreation education to insure adequate provisions for the needs of people and for local communities to meet local needs? What should be the legislation as related to the various components of health, physical, and recreation education (tenure, certification, time, activities, etc.)? What should be the nature of international and national legislation?

4. Political. How can unfavorable influences on health, physical, and recreation education be eliminated, and favorable influences encouraged? What should be the nature of political influences on the local, state, national, and international levels? What part should educators take in political activity?

5. Military. What should be the nature of the contribution made by professional workers to the military programs of health, physical, and recreation education? What should be the nature of the modification of

civilian programs to meet military needs? What are the common desirable outcomes? What should be the nature of the military influences on the health, physical, and recreation education profession and civilian institutions?

6. Cultural. What modifications should be made in health, physical, and recreation education in order to meet the needs of the various cultural groups found in communities?

7. Technological. What should be the relationship of health, physical, and recreation education to modern developments in transportation and radio and television? What should be the nature and scope of public presentations, contests, and demonstrations? How commercialized should physical and recreation education become? How can health education utilize modern developments in science?

8. Religious. How can professional workers help to meet the religious needs of people in a community? What should be the nature and scope of health, physical, and recreation education in religious organizations and institutions?

9. Geographic. What are the geographic influences on health, physical, and recreation education? How may these influences be incorporated into the programs?

Professional organizations. What should be the nature and scope of an organization that establishes health, physical, and recreation education as a profession? Should the full forces of health, physical, and recreation education be combined? What should be the legal status, membership status, professional requirements, etc.?

1. Standards. What should be the standards for the professional organization with respect to ethics, educational levels, requirements, and programs, and certification and accreditation? What should be the function of the American Association for Health, Physical Education and Recreation? How can standards be constructed and yet allow sufficient flexibility to local communities to develop health, physical, and recreation education programs to meet their needs? What are the operational standards for objectives, personnel, programs, facilities, equipment, safety, administration, legislation, evaluation, ethics, and guidance?

2. Public relations. How can larger numbers of professional workers attend the professional conferences held each year on the city, state, regional, and national levels? What should be the nature of these conferences in order that the profession may become established, and contributions to the welfare of people increased?

3. Research. How can research programs be improved and enlarged in order that the basic problems facing the profession may be solved? How can research be planned beyond student research to meet graduate requirements? What are the standards for research facilities and leadership?

4. Programs. What should be the programs of health, physical, and

recreation education activities, facilities, personnel, working conditions, and salary? How can desirable programs be established as the working basis for the profession?

Professional preparation. What should be the nature and type of professional preparation for the various types and levels of jobs in health, physical, and recreation education?

1. Recruitment. What should be the standards for recruitment of personnel, and how should the profession conduct such a program? What can be done to make employment in health, physical, and recreation education attractive enough to encourage highly qualified persons to enter the profession? What should be the nature of the coordinated effort on recruitment by the profession and by individual institutions? How can modern media of communication be used in recruiting prospective candidates for the profession?

2. Selection. What should be the standards for the selection of personnel in health, physical, and recreation education? How can standards be made an operating part of the program of all institutions preparing leadership for these programs? How can proper instruments be constructed in order that valid data may be gained about prospective candidates?

3. Pre-service education. What should be the program of professional education in order that individuals will be properly prepared for work in health, physical, and recreation education? How can the many varied duties in health, physical, and recreation education be considered in professional preparation? What should be the standards of accomplishment for professional preparation, curriculum provisions, and student achievement?

4. In-service education. How can programs of in-service education be planned to meet the demand for better prepared personnel? How can more common use be made of extension courses, special institutes, and lectures?

5. Certification. To what extent should certification requirements be established for health, physical, and recreation education personnel? What differences, if any, should exist among states in certification requirements?

6. Accreditation. What should be the extent of accreditation on a national, regional, or state basis? How can institutions without acceptable provisions preparing leaders for health, physical, and recreation education be eliminated or required to maintain adequate provisions?

Responsibilities. What are the responsibilities of leaders in health, physical, and recreation education, as professional workers and as citizens?

1. Internal. What should be the standards for professional work of various kinds and at various levels in health, physical, and recreation education? What are those responsibilities that are immediately related to the job and those that one should perform to improve the profession?

2. External. What are the duties of professional personnel as citizens? What should be the responsibilities in politics, community projects, religious agencies and organizations, and other community functions? What are the obligations in social living in a community for the professional worker?

SOME IMPORTANT PROBLEMS IN PHYSICAL EDUCATION

1. What should be the philosophical basis for physical education? How should the philosophy be correlated with the needs of the individual and society?

2. What should be the nature and emphasis of the objectives of physical education according to the needs of the individual and society? What should be the basis for determining where emphasis should be changed? What should be the relationship of professional, institutional, and individual objectives to emphasis on needs of the individual and society?

3. How may more adequate sponsorship for physical education be provided on the national, state, and local levels? What is the scope of sponsorship according to the needs of the individual and society?

4. How can physical education be effectively interpreted to the community in order that the program may realize its full potential?

5. How may the programs of physical education be coordinated in order to gain the most benefit with respect to individual and societal outcomes? What should be the extent of this coordination?

6. What are the characteristics, abilities, and capacities that should be known about the individual in order to provide information for program planning in physical education?

7. How can measurement instruments be constructed so that outcomes of the programs of physical education may be fully reflected in the individual?

8. How can evaluation instruments be constructed so that all aspects of the process of achieving outcomes of physical education may be reflected? How can leadership be educated on how to use this information in order to gain more adequate outcomes?

9. How can the programs of measurement and evaluation be developed to meet the conditions in the agencies' coordinating programs and yet yield valid results?

10. What are the bases for the selection of the physical education activities according to the needs of the individual and society?

11. What are the bases for the evaluation of activities according to their worth in contributing to the development, leadership, and adjustment of the individual?

12. What are the bases for the adaptation of activities according to

conditions that exist in agencies and according to the needs of the individual and society?

13. How may the individuals be adequately protected in his participation in physical education activities, according to agency ability to support this program, and yet yield the full value from this participation?

14. What are the standards for the physical education program according to individual levels of maturation and according to the needs of the individual and society? How may these standards be correlated at the various age and grade levels?

15. How may commercialism be eliminated from school programs of athletics? How can these programs be placed in proper relationship with other educational activities?

16. How may democratic procedures for group activity be established in the leadership responsible for physical education? What are the qualifications needed for such leadership?

17. How may the program of physical education be adequately financed? What place should gate receipts have in this financing?

18. How can sufficient trained leadership be provided for physical education so that optimum program outcomes will result?

19. What should be the nature and scope of the pre-service educational program for physical education leadership to provide the best leadership to meet needs of individuals and society?

20. How can in-service educational programs for leadership in physical education be established in order to keep leadership informed on modern developments?

21. How may the leaders in physical education be motivated to join together into a group in order to become a working force for a strong profession? How can this group be established as a correlated part of health education and recreation groups?

22. What should be the nature of the professional status of physical education leadership, and how may this status be achieved?

SOME IMPORTANT PROBLEMS IN HEALTH EDUCATION

1. How can the various community agencies interested and concerned in health best utilize the advantages of an expanding economy, avoiding undue reaction to periodic economic variations, yet adequately meeting community health needs?

2. What constitutes an effective medical examination and follow-through program for school children?

3. How can the organizational efficiency and the operations of school and community health programs be improved?

4. What constitutes the most effective professional organization for

health educators so that desirable benefits for its members may ensue?

5. How can a cooperative working relationship be developed between the school and all official and non-official community agencies interested in health programs?

6. What are desirable leadership techniques in school and community health programs and how can they be utilized more fully in existing programs?

7. What constitutes an optimally functioning school health program at various levels of education?

8. What criteria can be utilized to measure the effectiveness of leadership in health education?

9. How can health education contribute to the maximum growth and development of community members?

10. How can health teaching be made more meaningful and realistic?

11. How can better use be made of research methods and results in health education in order to gain more information about the people served and to enrich the programs?

12. What should be the nature of the pre-service education for the various levels and types of professional health education leadership?

13. How can health education enhance its status as a professional area and gain recognition so that the personnel will have proper standing in a community?

14. What constitutes suitable standards of leadership qualities of potential leaders in health education? How can those having desirable attributes be selected for training?

15. What should be the content of school health teaching at the various grade levels?

16. What are desirable ways of motivating better health behavior?

17. What are the responsibilities of the various school personnel in the school health program?

18. How can the profession of health education improve and standardize equipment and facilities to be used in its program?

SOME IMPORTANT PROBLEMS IN RECREATION EDUCATION

1. How can the recreation profession be organized so that its members will have the benefits that come from a well-established and efficiently operating professional organization?

2. How can the jurisdiction of various agencies performing recreation functions be better established and in some instances clarified?

3. By an analysis of the functions performed by recreation leaders, can recreation leadership be divided into logical classifications that would

aid college curriculum directors to establish courses and curricula for recreational leaders more easily?

4. What should be the nature of the pre-service professional curriculum for all levels of recreation leadership?

5. How can suitable standards of leadership be established and accepted by operating agencies so that a greater number of qualified leaders will be hired?

6. What criteria can be established to evaluate the effectiveness of recreation leadership?

7. What methods should be used to accredit schools that prepare professional recreation personnel?

8. To what extent should recreation leaders be certified?

9. What role should education play in preparing people for recreation leadership?

10. What are the distinguishable features of democratic leadership?

11. To what extent should recreation administrators rely on volunteer leadership, and how can this personnel be made more effective?

12. How can recreation contribute to the maximum growth and development of the people it serves?

13. How can recreation gain greater recognition among social agencies to the extent that it is recognized as a technical field of its own requiring specially trained personnel?

14. What contribution can recreation make to better human understanding among people of the world?

15. How can recreation better utilize available research methods to gain information about the people it serves and information about program results?

16. What should be the nature of the recreation program in order to meet the needs and interests of all people with respect to their physical, mental, emotional, and social growth?

17. What recreation activities are more applicable to various age groups, and how should the methods of conducting these activities differ?

18. How can recreation more adequately care for the recreational needs of the aged?

19. What should be the role of the state and federal governments in the conduct of public recreation?

20. How can recreation as a profession improve and standardize the facilities and equipment it must use in its program?

PART III

THE PROCEDURES FOR SOLVING PROBLEMS

Preface to Part III

The highest level of professional activity is problem solving. This is also the most difficult level. If facts are needed for the solution of a problem, research must be conducted to gain those facts. Research, however, is not merely conducting experiments in a laboratory; it involves everything that may be defined as fact-finding. Opinion, if properly applied, can constitute facts needed to solve some educational problems. The authors have included in Part III the essentials in research methodology for solving problems. These procedures are useful for the research specialist as well as for the administrator. If these procedures are followed, the resulting problem solutions will be found to be valid.

Highly specialized methodology (factor analysis, for example) has been excluded, but how these procedures are used in problem solving is presented. It is sometimes necessary to make special references for solving some problems. Procedures will be found in Part III for the solution of many problems.

Solving problems must follow a pattern that has been found to be acceptable. These patterns are presented in successive chapters; the procedures on the research methodology for a particular problem may be located by a review of these chapters and by determining the pattern that fits the problems. The need for each step and the successive steps are:

1. *Resources for problem solving.* The first step in problem solving is to locate all pertinent writings on the subject. Because the writings

are not found in one source, it is essential that the various sources are known and reviewed. Chapter 7 provides a guide on the use of the library and the indexes that contain references in education. Upon reviewing previous investigations one might find all the facts needed to solve the problem, or that the solution has been presented in an available source.

2. *The designs for problem solving.* Before collection and analysis of data can begin it is necessary to define the problem. This is the most difficult step in problem solving since the statement must include the facts needed in order that a valid solution will result. The definition will include a statement of the problem, the divisional parts or sub-problems, hypotheses, assumptions, delimitations, significance, and relationship to the literature. The solution for all problems must be planned according to these elements. In some instances only minor reference may be made to some of the elements, but they should be considered before being discarded. Chapter 8 also illustrates the various designs which may be used in problem solving. A single pattern or combinations will be found to apply to a particular problem.

3. *The methodology for problem solving.* The procedures on the application of the various patterns of problem solving need to be determined and applied. Chapter 9 presents procedures that may be used to solve problems (after design has been established; Chapter 8). This includes the application of the scientific method since it is a part or framework of the historical, survey, experimental, causal, philosophical, and statistical patterns. The procedures on gaining an adequate sample of the needed facts are also presented. The facts must be representative of the population or instance to which the solution is to be applied.

4. *The techniques used to collect data.* After the pattern for the solution of a problem has been determined, it is necessary to select the data collecting techniques that will yield valid facts. These are presented in Chapter 10, and guides for their application, in the form of criteria, are indicated. The appropriate technique must be selected. Using a questionnaire to collect data in an experimental problem is usually unacceptable.

5. *Procedures on the analysis of results.* The investigator must know whether qualitative or quantitative methods are to be used in analysis, and he must know the procedures in the use of these tools. Guides in the form of principles, and an organization of the various tools and their application are included in Chapter 11.

6. *Preparation of reports.* The results of research must be reported. What should be considered in the presentation of the results of an investigation is included in Chapter 12. One may wish to exclude or deviate from some of the steps presented, and each step should be checked to determine its essentiality.

CHAPTER 7

Resources for Problem Solving

Fundamental to good research and the study of any topic is the availability of source material. Most universities and colleges have excellent libraries, but few individuals ever become thoroughly familiar with their contents, or the many methods that might be employed to locate material. This chapter is, therefore, concerned with outlining a procedure for locating educational material, primarily for the fields of health, physical, and recreation education, although much of it will apply to other fields of education.

Educational materials useful for problem solving in education are books, serials (periodicals, publications and proceedings of societies, publications of universities), documents (U.S. government, state, county, local), and bibliographies (in all fields). Book material is usually secondary and in many instances out-of-date. Serials, documents, and bibliographies represent the major significant sources for the location of educational information. References are not found in any one single source or index. After the nature of the educational writings is known, it is necessary to locate the indexes that contain the material. One should also consult with experts in the particular field of investigation to gain information on the location of important sources.

It is also desirable to provide bibliography cards for recording essential data and reviews. These can be prepared by the investigator (Figure 6). Data about the periodical reference should include author, title, volume, number, year, month, and page numbers. Data about book references should include author, title, city, publisher, and page numbers. The card should be of sufficient size so that an abstract of the source may be made. The reverse side of the card may be used for additional space if needed.

Most libraries are similar in that they possess certain basic divisions. The most common of these are the circulation desk, the reserve section, the reference division, and the serial division.

The *circulation desk* is where books are checked out for home use, usually for a specific time up to two weeks.

The *reserve section* contains books that are usually loaned only for a

short period, such as one to two hours or overnight. Books usually are placed in the reserve section at the request of an instructor, or because the demand for them is so great that it exceeds the number of books available.

The *reference division* usually includes indexes, encyclopedias, dictionaries, guides, handbooks, bibliographies, and yearbooks.

The *serial division* contains periodical indexes and other reference books that facilitate the use of periodicals and serials.

Card catalog. After the subject for investigation has been established, the investigator must then take the first step in determining what published material there is available concerning the subject selected: reference to the *card catalog*.

1. Author:	_____
2. Title:	_____
3. Publisher or periodical:	_____
4. Vol. _____ No. _____ Pages: _____ Year: _____ Month: _____	

FIGURE 6. Bibliographical Card.

In the drawers that make up the card catalog, the investigator will find many cards comprising an index to the books in the library. The entire collection of catalog cards is arranged in alphabetical order, and each individual drawer will indicate by label the portion of the alphabet contained in that drawer.

Reading the card catalog is similar to reading a telephone directory or a dictionary. There are, however, exceptions to the rule that require elaboration. Under such headings as United States (U.S.), New York (N.Y.), and National Education Association (N.E.A.), a voluminous amount of information is available. Under the heading U.S., there may be indexed thousands of catalog cards, and the necessity for a "system within a system" is readily apparent. The system used by most libraries is an arrangement by key words, viz.:

U.S. Agriculture
U.S. Children's Bureau
U.S. Bureau of Dependents

U.S. Bureau of Education
U.S. Federal Reserve Board
U.S. Bureau of Mines

It should also be noted that the United States and its various departments, as authors of publications, are first treated in their entirety, after which *United States* is indexed as a subject.

A second exception to the general rule of alphabetization concerns itself with the listing of titles of books. In this connection such initial articles as *the, a, an*, are uniformly omitted, and the first main word is used for alphabetization. *The Curriculum in Sports* would be filed as *Curriculum in Sports*; *A Study of Endemic Pellagra* is filed as *Study of Endemic Pellagra*.

Each book in the university library collection has at least two, and in most cases more than two, cards filed in the catalog. One card is filed under the author's name (Figure 7), one card is filed under the title of

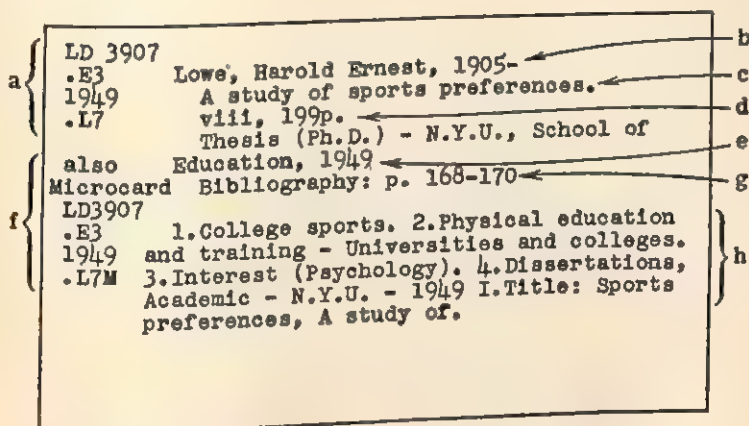


FIGURE 7. Illustration of Author's Card.

- a. Call number and date of publication.
- b. Author's name and his date of birth.
- c. Complete title and author's name as written on title page.
- d. Pages.
- e. Place, publisher, and date of publication. In these illustrations the theses have not been published. When published, the city and name of publisher are given.
- f. Indicates that the study is available on microcards. Call number and date of printing are listed.
- g. Bibliography with page reference.
- h. Other entries under which this book may be found in the catalog.

Note: Other information, included on cards but not contained in cited illustrations, includes:

1. Edition. This follows the title and indicates the edition of publication.
2. Series. This also follows the title and indicates the series of publica-

tion; e.g., *School of Education Series, New York University* would illustrate a series of publications on a topic or phase of education.

3. Contents. Indicates contents of publications in major divisions.

4. Library of Congress card order number and call number. This is listed under the title "Library of Congress."

the book (Figure 8), and one or more cards are filed under the subject matter treated in the book. The catalog cards contain as much information about the book as can possibly be put on the card. Figures 7 and 8 illustrate the information found on cards.

Of particular importance to the investigator is that section of the card which lists the "other entries under which this book may be found in the catalog." Occasions will arise when the researcher will have difficulty in determining the subject heading used by the library for his particular topic. By checking the catalog under the general subject heading or headings in which he is interested, and by locating at least one book that is useful in his report, he may now check "other entries under which this book may be found in the catalog"—he has, therefore, located the specific subject headings under which all the books on the subject are listed.

Another important and useful approach for the researcher who has located one book in his subject is to use the bibliography developed by the author of the book and continue his research in this manner. This

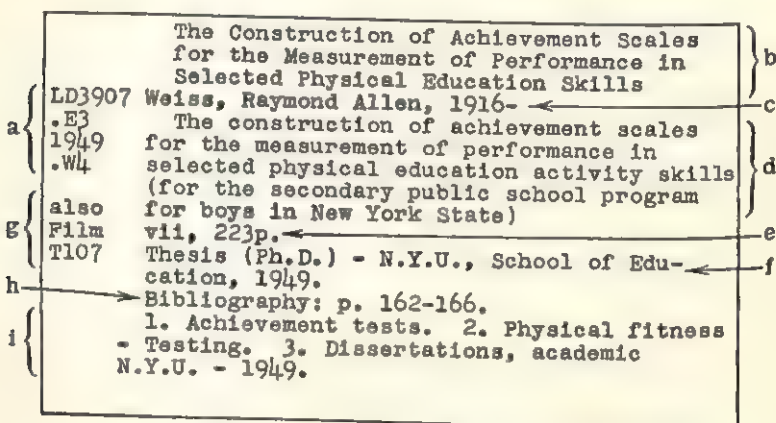


FIGURE 8. Illustration of Title Card.

a. Call number and date of publication.

b. Title.

c. Author's name and his date of birth.

d. Complete title as written on title page.

e. Pages.

f. Place, publisher, and date of publication. In these illustrations the theses have not been published. When published, the city and name of publisher are given.

g. Indicates that the study is available in microfilm.

h. Bibliography with page reference.

i. Other entries under which this book may be found in the catalog.

is particularly valuable when the book or periodical reports the results of studies related to the subject under investigation.

PERIODICALS

Periodicals constitute a very important source of material. It would be simpler if this material found its way into book form, but little of it ever does. Current information is reported in periodicals long before it appears in books; it is essential, therefore, for the student to be thoroughly familiar with the various indexes dealing with periodicals.

For best results the investigator should explore both the card catalog for books on the subject and the periodical indexes for articles on the subject.

In requesting the use of any periodical from a library the procedure is similar to that required when making a request for a book. Call numbers of the periodicals are located in a small card catalog usually separate from the main card catalog.

To acquaint students with some of the periodical indexes containing information on education or related subjects, some of the major indexes in these fields are presented.

The Education Index

The Education Index was started in 1929. It is a complete guide to the best in current professional literature for educational workers in every branch of the field.

The Education Index lists by author and subject the contents of over 150 educational periodicals and yearbooks. The entire list of magazines and yearbooks given in *The Education Index* can be found on the inside cover of each bound volume. Educational publications of institutions, associations, and foundations are listed each month. Many are completely analyzed and a check list of documents is also presented. *The Education Index* is published in ten monthly issues.

Among the more pertinent periodicals whose contents are listed in *The Education Index* are:

Adult Education Bulletin
American Association of Colleges for Teacher Education. Yearbook
American Association for Health, Physical Education and Recreation Research Quarterly
American Student Health Association. Proceedings
American Childhood
American Teacher
Athletic Journal
Camping Magazine
Child Development

Child Study
Childhood Education
Education Digest
Education Leadership
Education Research Bulletin
Higher Education
Journal of Educational Research
Journal of Health, Physical Education and Recreation
National Collegiate Athletic Association. Proceedings
National Education Association. Proceedings

KINDERGARTEN—*Continued*

Activities

January in the 1952 kindergarten. E. R. Taylor. *Il Am Childh* 37:20-2 Ja '52

Equipment and supplies

Tools for beginners. J. J. Leavitt. *Instr* 61:20 Ja '52

Value

Reading readiness through kindergarten experience. S. H. Cowin. *El Sch J* 52:96-9 O '51

KINERT, Harry

Kinert press. *Athletic J* 32:14-15+ D '51

KINETICS, See Dynamics

KING, Helen

Our clothing unit. *Grade Teach* 69:42+ Ja '52

KING, Lloyd H.

School carnivals are the line of least resistance. *Nat Ed Assn J* 40:538-9 N '51

KING, Lloyd W.

Economics of textbook publishing. *Phi Delta Kappan* 33:254-6 Ja '52

KINSEY, Elizabeth, pseud. See Clymer, E. L.

KINTZEL, Frank M.

School attendance register: a device for handling chronic absence in large schools. *por Ohio Sch* 29:312-13 O '51

KIRBY, Donald Beach. See Mulvin, T. B. Jr. auth.

KIRKENDALL, Lester Allen

Now it's marriage in the high schools. *Ed Digest* 17:32-3 D '51

Sex education. *Nat Ed Assn J* 40:633-4 D '51

KIRKPATRICK, J. B.

How do you feel? *Am Assn Health Phys Ed & Rec J* 22:30-1+ D '51

KIRSCH, Robert R.

Newspapers face the challenge of mass communications. *bibliog f Claremont Col Reading Conf* 1951:43-52

KLEIN, A. E.

Fallacies in teaching typewriting. *por Bsns Ed World* 32:70-2, 135+, 184+ O-D '51

KLEIN, M. William

Appropriate teaching materials for instrumental music classes. *bibliog H Points* 33:21-9 N '51

FIGURE 9. Illustration of *The Education Index*, Author Listing.
(Courtesy of the H. W. Wilson Co., N.Y.)

A sample page of the Education Index is shown in Figures 9 and 10.

The abbreviations contained in the Index at first appear confusing; however, a key to these abbreviations is found in the initial pages of each bound volume.

Reader's Guide to Periodical Literature

The *Reader's Guide to Periodical Literature* was started in 1900. It contains an author and subject index of over 130 magazines. The publication of the *Reader's Guide* closely follows the publication of the periodicals with semi-monthly issues for September to June, and monthly issues in July and August. Since emphasis is placed on magazines of general interest, the *Reader's Guide* rarely duplicates references that appear in *The Education Index*.

All articles are entered under specific subjects, making it simple to find any one article or what has been published on any one subject.

PHYSICAL apparatus

- Are X-ray tube demonstrations safe? R. Schlegel and J. C. Lee, bibliog f diag Am J Physics 19:470-3 N '51
- C. V. Boys' rainbow cup and experiments with thin films. J. Satterly, bibliog f il Am J Physics 19:448-51 N '51
- Demonstrating harmonics and beats. R. C. Hitchcock, bibliog f il diags Am J Physics 19:445-7 N '51
- Fitch's apparatus for the measurement of the thermal conductivity. F. P. Fritchle, Am J Physics 19:475 N '51
- Further note on measurement of wavelength with a diffraction grating. L. R. Weber and D. L. Hammond, diag Am J Physics 19:562 D '51
- Photometric teaching methods using photoelectric cells. U. Andrewes and T. J. Dillon, diags Am J Physics 19:514-19 D '51

PHYSICAL directors**Selection and appointment**

- Dangerous age of a profession. C. L. Brownell, Am Assn Health Phys Ed & Rec J 22: 23-5 D '51

PHYSICAL education

- Developing democratic human relations through health, physical education and recreation; yearbook. American association for health, physical education, and recreation. \$4.25 '51 The assn.
- Physical education activity: how much and what kind? J. W. Long. Schol Coach 21: 56+ N '51

Aims and objectives

- Purposes in physical education as evaluated by participants, physical education supervisors, and educational administrators. C. C. Cowell and others, bibliog Res Q 22:286-97 O '51

Bibliography

- Bibliography on physical health needs of adolescents in the secondary schools. G. E. Shepard, comp. H Sch J 35:57-61 N '51

Curriculum

- Curriculum in health and physical education. L. W. Irwin. 2d ed \$4 '51 Mosby
- Physical education curriculum, a national program. W. R. LaPorte. 5th ed rev pa \$1 '51 Parker & co, 241 E 4th st, Los Angeles 13

Evaluation

- Gym class, a story by Joe. E. Cobane. il Am Assn Health Phys Ed & Rec J 22: 32-4 D '51
- Purposes in physical education as evaluated by participants, physical education supervisors, and educational administrators. C. C. Cowell and others, bibliog Res Q 22: 286-97 O '51

Research

- Study of some personality traits of different physical activity groups. L. Flanagan, bibliog Res Q 22:312-23 O '51

FIGURE 10. Illustration of *The Education Index*, Subject Listing.
(Courtesy of the H. W. Wilson Co., N.Y.)

Cross references insure the finding of all available information on any subject. Maps, portraits and illustrations, and bibliographies are also noted. Each entry gives the necessary data on the location of the articles—name of periodical, volume number, inclusive paging, and date.
Periodicals of specific interest to the students of health, physical, and

+	continued on later pages of same is- sue
•	Book analyzed
abbrev	abbreviation
abr	abridged
Ag	August
Am	America, American
Ap	April
assn	association
auth	author
av	avenue
bd	board
bibliog	bibliography

FIGURE 11. Illustration of Key to Abbreviations in *The Education Index*.

recreation education that are indexed in the *Reader's Guide* follow. A complete list of indexed periodicals is found on the inner front pages of the index in the *Reader's Guide*.

<i>American Journal of Public Health and the Nation's Health</i>	<i>New York Times Magazine</i>
<i>Consumers Research Bulletin</i>	<i>Recreation</i>
<i>Education</i>	<i>School Arts</i>
<i>Elementary School Journal</i>	<i>School Life</i>
<i>Hobbies</i>	<i>School Review</i>
<i>Journal of the National Education Association</i>	<i>School and Society</i>
<i>Nature Magazine</i>	<i>Senior Scholastic</i>
	<i>Today's Health</i>
	<i>U.S. Office of Education Bulletins</i>

Since the *Reader's Guide to Periodical Literature* and *The Education Index* are both published by the same company (H. W. Wilson, New York), abbreviations and general format are the same.

A sample page of the *Reader's Guide* is shown in Figure 12.

Quarterly Cumulative Index Medicus

This index is the most important current international index to the medical and allied sciences.

In any serious research in which a highly technical bibliography is essential, the *Index Medicus* must be consulted. An author and subject index to 1200 foreign and domestic journals forms a practically complete coverage of writings in medicine and related sciences. It is issued four times a year. Some of the journals indexed are:

<i>American Heart Journal</i>	<i>Journal of the American Medical Association</i>
<i>American Journal of Hygiene</i>	<i>Journal of Aviation Medicine</i>
<i>Annals of Dentistry</i>	<i>Journal of the American Dental Association</i>
<i>Archives of Physical Medicine</i>	<i>Journal of Experimental Psychology</i>
<i>Food Research</i>	<i>National Institute of Health Bulletin</i>
<i>Industrial Hygiene Bulletin</i>	

HEALTH clinics

Putting heart cases back to work; Cleveland area heart society. *il Bsns W* p52+ Ja 19 '52

HEALTH departments

National advisory committee meets. *Am J Pub Health* 42:55 Ja '52

Public health in the United States; appraisal of local health services. V. A. Van Volkenburgh. *Am J Public Health* 42:49-55 Ja '52

HEALTH education

Health education and minority groups. M. L. Hartung. *Sch R* 60:74-5 F '52

Health education as a two-way process. *Am J Pub Health* 42:74-5 Ja '52

Public health degrees and certificates granted in the United States and Canada, during the academic year, 1950-1951. L. E. Burney. bibliog tabs *Am J Pub Health* 42:69-73 Ja '52

HEALTH needs of the Nation, Commission on the. See United States—Commission on the health needs of the Nation

HEALTH officers

Civil defense from a health officer's viewpoint. H. D. Choche. *Am J Pub Health* 42:115-18 F '52

HEALTH surveys

Public health in the United States; appraisal of local health services. V. A. Van Volkenburgh. *Am J Public Health* 42:49-55 Ja '52

HEALY, Paul F.

He exposed the thefts in the Revenue bureau. *Sat Eve Post* 224:17-19+ Mr 1 '52

HEAR the wind blow; story. See Weaver, J. D.

HEARD, Frances Taylor

House beautiful's good living house in San Antonio. *House B* 94:84-91+ Mr '52

HEARING

New way to better hearing. V. L. Browd. *Sci Digest* 31:21-6 F '52

Testing

Delayed speech feedback as a test for auditory malingering. W. R. Tiffany and C. N. Hanley. bibliog *Science* 116:59-60 Ja 18 '52

Detect false deafness. *Sci N L* 61:70 F 2 '52

Self-check for hearing loss. *Sci N L* 61:137

Mr 1 '52

HEARING aids

Lenoir turns on the sound. *il Rotarian* 80:34-5 F '52

Sorry, I didn't hear you. G. W. Frankel. *il Todays Health* 30:38-40 F '52

HEART

Heart stops beating for 25 minutes, man recovers. *Sci Digest* 31:49 F '52

Diseases

Heart attack. K. Albert. *il Womans Home C* 79:40-1+ Mr '52

Heart murmurs. *Time* 59:49 Ja 28 '52

Putting heart cases back to work. *il Bsns W* p52+ Ja 19 '52

Rheumatic heart, childhood's greatest enemy. J. D. Ratcliff. *Parents Mag* 27:36-7+ F '52

Where hearts are trumps; Framingham. W. Sawyer. *il Rotarian* 80:26-8 F '52

FIGURE 12. Illustration of *Reader's Guide to Periodical Literature*.
(Courtesy of the H. W. Wilson Co., N.Y.)

Current List of Medical Literature

(Washington, Army Medical Library)

The *Current List of Medical Literature* was started in 1941. It is a weekly listing, by subject, of the contents of current medical journals.



It has a monthly subject index since 1945. The new publication plans of the Army Medical Library announced in April, 1950, indicate developments for periodical analyzation to fill the place of the index catalog, which is to be discontinued. The list will be issued monthly with cumulated annual indexes and will cover more than 1200 medical journals.

New York Medicine

Authors and subjects are arranged in one alphabet, much as in the *Reader's Guide*, and complete bibliographical references are given under the author's name. English, French, German, Spanish, Italian, and Portuguese articles are included.

In order to simplify organization of the index, titles of articles are shortened, expanded, or inverted to clarify the nature of the subject discussed.

Union List of Serials

No college or university library in the United States is able to include in its collection all the periodicals that are printed. In order to bridge this gap, over 650 libraries have cooperated to produce the *Union List of Serials*, which contains more than 120,000 serial titles.

When the researcher has located several articles he is interested in reading and finds that the university collection does not include the

ABBREVIATIONS AND SYMBOLS

+	currently received	os	old series	Ap	April
[]	incomplete	pc	photostat copy	My	May
	closed entry	pt	part	Je	June
?	incomplete or uncertain	s	series	Jl	July
fc	film copy	v	volume	Ag	August
nd	no date	yr	year	S	September
no	number	Ja	January	O	October
np	no place	F	February	N	November
ns	new series	Mr	March	D	December

SAMPLE ENTRY

MUSICAL union, London
 Record of the musical union. 1-36,1845-80||
 Title varies: Annual record; Annual report; etc.
 CtY 24 MB 1-[5-6]7
 DLC NN [1]-8,9-27

Explanation: "1-36, 1845-80||" indicates that this serial which began in 1845, ceased publication with volume 36 in 1880. CtY (Yale University) has volume 24 only. DLC (Library of Congress) has a complete set. MB (Boston Public Library) has volumes 1 through 7 but volumes 5 and 6 are not complete. NN (New York Public Library) has an incomplete file from volume 1 through 27. Volume 1 is incomplete, and volumes 7 and 8 are lacking.

FIGURE 13. Index to Abbreviations Used in the *Union List of Serials*.

periodicals that contain these articles, he may, by checking the *Union List of Serials* under the title of the periodical, locate libraries within easy traveling distance that include in their collection the specific magazines in which he is interested. Having at his disposal a large number of cooperating libraries, the investigator is able to complete his survey with a minimum of time and effort.

Arrangement of periodicals in the *Union List of Serials* is by title, except in the case of society and institutional publications, which are entered under the name of the society or institution. Abbreviations for libraries used in the *Union List of Serials* are listed in the front of the volume. A sample entry is found in Figure 13.

The New York Times Index

The New York Times Index offers a master key to the news that is often useful for those engaged in historical research. It is very helpful in sociological studies and studies of a particular event as reported in the news. The index will include the date, page, and column in which the material appears.

Micro-film records of *The New York Times* make the problem of storage of the *Times* itself comparatively simple. Individuals who are not familiar with the use of micro-films should take steps to acquaint themselves with this excellent source of material. More and more universities and public libraries are micro-filming rare and valuable outdated books and periodicals that contain immeasurable treasures of information. It will be noted that items in *The New York Times Index* are listed by subject. When a research student is not sure of the subject under which the event is listed, he would do well to consult the librarian.

The Cumulative Book Index

The Cumulative Book Index began in 1898 as *The United States Catalog*. *The United States Catalog* is a record of all books in English published in the United States and Canada and in print as of January 1928. Following the 4th edition (1928) *The United States Catalog* became *The Cumulative Book Index* and it now records all books published in English throughout the world. Books are indexed under author, editor, subject, and translator, and included under each heading are the publisher, price, date of publication, paging, size, edition, and Library of Congress card order number.

The Cumulative Book Index offers to the researcher a complete view of published books in a given field. A great number of these books, of course, may not be available in the library. Books in health, physical, and recreation education are well represented under their specific subject headings, as well as under:

Athletics	Health
Amusements	Leisure
Care and hygiene	Posture
Community centers	Play
Dancing	Physical Education
Exercise	Recreation
Games	Running
Gymnasium	Sports

A sample page is shown in Figure 14.

- Head first. Hughes, G. pa 85c Row
Headache
 Lippman, C. W. and M. Understanding your
 migraine headache. \$2.50 '52 Greenberg
Headline crimes of the year. Radin, E: D. bds
 \$2.75 Little
Healer of Los Olmos. Hudson, W. M. \$3.75
 Tex. folk-lore soc.
Health and the citizen. Walker, J. V. 10s 6d
 Hollis & Carter
Health counseling. Schwebel, M. and Harris,
 E. F. \$3 Chartwell house, inc, 280 Madison
 av, N.Y. 16
Health instruction yearbook, 1951. Byrd, O. E.
 comp. \$3.50 Stanford univ. press
Heard island
 Scholes, W: A. Fourteen men. See author
 entry
Heart
 Diseases
 Levy, R. L: ed. Disorders of the heart and
 circulation. \$12 '51 Williams & Wilkins
 Lowe, T: E: and others. Practical sig-
 nificance of modern cardiological invest-
 igations. 45s '51 Melbourne univ. press;
 Cambridge
Hearth in the snow. Buchan, L. and Allen, J.
 \$3.50 Funk, W.
Heath, Royton E.
 Alpine plants under glass. D 172p 11 col 11
 12s 6d '51 Gifford
Heberden, Mary Violet (Charles L. Leonard,
 pseud) 1906-
 Sinister shelter, by Charles L. Leonard; pub.
 for the Cflme club. O 9-191p bds \$2.25 '49
 Doubleday (W) 49-9321
 —Same, by Charles L. Leonard. D 239p 9s
 6d '52 Mus. press
Hebrew language
 St John, R. Tongue of the prophets. \$4 '52
 Doubleday
Heddie, Enid Moodie. See Moodie Heddie, E.
Helperin, Michael Angelo, 1909-
 Trade of nations. 2d ed enl O xix,302,1xp \$4
 '52 Knopf 51-11998

FIGURE 14. Illustration of *The Cumulative Book Index*.
 (Courtesy of the H. W. Wilson Co., N.Y.)

The Book Review Digest

The Book Review Digest was started in 1905. It lists and reviews new books. About 4000 books are listed each year. Every fifth year, the volume contains a cumulated subject and title index of the books included during the previous five-year period.

Listed by author, with a subject and title index available in the back

of each bound volume, the price, publisher, descriptive notes and quotations from reviews are also included. *The Book Review Digest* enables the individual to compare his own evaluation of a book with the evaluation of a number of experts in the field and to obtain an authoritative analysis of a book or books the student may be planning to read or purchase. Both favorable and unfavorable reviews are normally given to bring out all points of view.

The only prerequisite necessary in locating the digest and review of a given book is a knowledge of the year of publication. This may be obtained from the book itself, the card catalog, or *The Cumulative Book*

KILANDER, HOLGER FREDERICK. Nutrition for health. 415p il \$3 McGraw
612.39 Nutrition. Diet 51-13041

"Dr. Kilander, the author of this textbook for high school students, is a specialist for health education in the United States Office of Education. The topics covered by the text, in addition to the functions of the various nutrients in the body and the use of the Basic Seven food groups as an aid in the selection of diets, include digestion, health as related to food, weight control, and the sanitary handling of food. The last chapter, entitled 'You Can't Believe Everything You Hear About Food,' deserves special mention. Study questions are provided at the end of each chapter." J Home Econ

"An ample number of excellent illustrations is used. The writing is clear and the organization of the material good." T. J. McMillan
+ J Home Econ 44:65 Ja '52 200w

"The author has an easy-to-read style of writing. He has accumulated an abundance of scientific and factual information in the field of nutrition. He has given his readers an opportunity to know sound nutrition and a yardstick by which to choose wisely in terms of their own dietary needs. Dr. Kilander shows clearly the relation of nutrition to well-being and its application to world problems." R. J. Frantz

+ School R 50:61 Ja '52 170w

FIGURE 15. Illustration of *Book Review Digest*.
(Courtesy of the H. W. Wilson Co., N.Y.)

Index. If, for example, the researcher is interested in the description and evaluation of Kilander's *Nutrition for Health*, he would locate the book under the author's name in the 1952 *Book Review Digest* and would find the following (Figure 15):

KILANDER, HOLGER FREDERICK. Nutrition for health. 415p il \$3 McGraw.

The notation at the end of the excerpt (+ School R 50:61Ja '52 170w) indicates by the plus sign that it is a favorable review; a minus sign indicates an unfavorable review; the name of the magazine in which the entire review appears (*School Review*); the volume and page number (volume 50, page 61); the month and year of the magazine (January 1952); and the number of words in the complete review (170 words).

Standard Catalog for Public Libraries

The *Standard Catalog for Public Libraries* offers a carefully evaluated selection of the best books in a given field. It contains a basic bibliography of over 12,300 annotated books that are considered fundamental acquisitions for all public libraries. These titles are selected on the basis of the needs of the small and medium-sized library.

The fact that all books mentioned are carefully annotated affords the researcher a valuable supplement to *The Book Review Digest*.

It is important to note that books in the field of health education are listed as a subheading under Medicine (610), while books in the field of physical education and recreation are subheaded under Amusements (790).

Books included in the *Standard Catalog* have been chosen by librarians who are specialists at their work, and the resulting volume is a master guide not only to the best but the most authoritative contributions in any field of study.

Following the classified list there are given the author, title, subject, and analytical index arranged alphabetically. Some 2000 books have been analyzed wholly or in part.

CHAPTER 8

Designs—Plans for Problem Solving

Planning the solution of an educational problem is a scientific matter. It is not possible to gain an acceptable solution to a problem by simply collecting data. It is necessary to plan systematically in order to see that all elements needed for the solution of the problem are included and that valid procedures are established in order to gain the data needed.

Planning or designing for the solution of a problem may be divided into two parts. The *first* part deals with the design of the *nature* and *scope* of the problem. Before research may begin it is necessary to determine what constitutes the problem. Such a design will include all elements, within a defined framework, needed for the solution of the problem. The *second* part deals with procedures for the collection, analysis, and interpretation of data for the solution. The latter design is presented in Chapter 11; the former is the concern of this chapter, but both parts are illustrated in this chapter (section on Application p. 202).

Successful research will result only when valid designs are prepared with respect to both parts. It is not possible, for example, to build a house unless "what is desired" and "what is needed in order that it may be accomplished" are determined. So it is in educational research.

THE ELEMENTS OF THE PROBLEM DESIGN

A systematic and well-established design is followed in determining what the problem is. These elements are not necessarily applied in the order of presentation, but all must be considered, when the *nature* and *scope* of the problem are to be determined. The elements are applicable to all educational problems. In fact, a classification of the problem is not possible until the elements are applied; that is, whether the problem is historical, survey, philosophical, causal, experimental, or statistical.

The setting. It is necessary to understand the setting of the educational problem. The setting represents both the animate and inanimate environments of the educational activity under investigation. A problem dealing with a program of physical education in a public school must

be developed in a setting that goes beyond the immediate activity in the school. In the development of the problem, such considerations as the socio-economic conditions in the community, the religious influences, transportation, urban or rural location, and principal occupations are among the factors that need to be considered as the setting of the problem. It will be found that some factors are so related to the program of physical education that they will need to be included as "variables" in the research. Others may need to be considered when results are applied. In addition, the others may be "held constant" in the process of the investigation so that their influences may be eliminated. In order that the problem design may be accomplished, it is necessary that the investigator be thoroughly familiar with the community concerned in the investigation, both as a theoretical problem in education and as a practical-operational problem.

The statement of the problem. If the investigator is not able to formulate a statement about the problem that is all-inclusive, it is evident that a complete understanding about the problem is not known. Further study of the written material and the conditions surrounding the problem is then necessary. The problem statement should be briefly presented, but be of sufficient description to establish the direction of the investigation. Using the cited example, this statement could read as follows: "It is the purpose of this study to construct a program of physical education for all the elementary and secondary schools in a community, in light of modern educational trends and standards, and in terms of the community factors that influence this program, as well as the factors within the school that influence the program either favorably or unfavorably."

The divisional parts of the problem. The all-inclusive statement of the problem is too complex to give detailed direction for the solution of the problem. This complexity becomes evident when one begins to plan such procedures for the solution of the problem as the selection of techniques for the collection of data, the selection of books for the analysis of data, and the interpretation of results. Therefore, it is necessary to divide the statement into divisional parts or sub-problems to represent the homogeneous components of the problem. What constitutes a component is determined by the test of uniqueness; like elements should go together. Reference should be made to procedure designs as a guide to determine the composition of the sub-problem. Because procedures follow the design of the problem, such reference will be made on the basis of what is likely to be used. The sub-problems could be written as follows (the sub-problems must be presented according to the exact nature of each phase, or the specific facts needed for a valid solution of the total problem):

1. What are the modern trends of elementary and secondary public school education?

2. What are the relationships and implications of these trends for the public school program of physical education?

3. What are the characteristics of the community and what represents the needs of education with respect to the characteristics?

4. What are the school environmental influences that handicap or aid the educational programs?

5. What are the standards for a program of physical education, according to conditions established in previous sub-programs?

6. What constitutes the program of physical education for the community in the elementary and secondary schools?

The hypothesis or hypotheses. It is sometimes advisable to restate the problem in more limited terms, therefore hypotheses are used. These are statements that tentatively represent the solution to the problem, in any way that seems reasonable to the investigator or according to facts available. Research then begins to obtain facts to support or negate the hypotheses fully or partially. These hypotheses eliminate all possibilities for the solution of the problem except the statements made representing the hypotheses. The basis for decision again rests on the problem requirements in data for an adequate solution. Using the cited example, the following hypotheses may be made:

1. The program of physical education must place major emphasis on the social outcomes in order to meet the community needs of the students.

2. In order that the program of physical education may be in accord with modern trends in education, it is important to place emphasis not only on the social outcomes, but also on the methods used in teaching physical education, particularly as they relate to the democratic process.

3. An acceptable program of physical education may be developed in a school and community setting regardless of the nature of the animate or inanimate influences which are exerted.

The assumptions. Assumptions are statements assumed to be true without being investigated, whereas hypotheses are statements that are assumed to be true or false and will either be confirmed or rejected by the investigation. Assumptions must be consistent with available facts; research must not be built on a foundation that is questionable. This is especially important because the investigation will not contribute to a further understanding of the assumption but will be affected by it to an extent that the entire research may be found inadequate. The assumption that a foundation for a proposed building is adequate is an example; the construction of the house is affected by the assumption, but in no way is the construction of the foundation involved in the building. If the assumption is found false, the building will crumble. In the construction of a program of physical education (the example cited) the assumptions which appear to be significant are:

1. The programs of physical education must be planned according to the general educational implications for physical education.

2. The programs of education and physical education are planned for the purpose of serving the community so that physical, mental, emotional, and social life will be in accord with good standards of society and according to the needs of the people with respect to these standards.

3. The standards available for the program of physical education are adequate and may therefore be applied as a basis for the determination of program needs in this investigation.

The delimitations. It is always necessary to define further the scope of research by statements of delimitation that indicate what elements are to be included. The scope is further developed on the basis of those elements that will not be included. These statements are necessary in order that the research may be accomplished within a given framework and not be dissipated by attempting more than possible under the conditions for the investigation. All factors surrounding the study must be considered and either included in the investigation or plans made for their exclusion; however, factors which are needed for the solution of a problem cannot be eliminated. The test for the completeness of the scope of the problem is the description of all variables needed for the solution of the problem as included in the design of the research, or excluded as unnecessary variables as part of the statements of delimitation. Statements of delimitation may be illustrated for the cited problem as follows:

1. The investigation is a one-community problem that will include all community factors related to the public school education program.

2. The investigation is concerned with the program of physical education for the elementary and secondary schools and will therefore be concerned with general education only insofar as it is related to this program.

3. The program of physical education will include both sexes for the elementary and secondary grades.

4. The investigation will include only the required program of physical education; therefore consideration will not be given to intramural and other extracurricular activities. The programs of health education and recreation will also be excluded.

5. The study will include only the 12 grades, from the first grade through the twelfth.

6. The investigation will include the program of activities, facilities, leadership, and administration. The study will not be concerned with philosophy and objectives pursued. Matters of professional preparation will also be excluded. The study is contemporary, therefore it will not develop the public school program historically.

7. The study is designed for the purpose of preparing a program which

is educationally sound, but will not concern itself with the problems of implementation.

The relationships with the source material. A design for an investigation cannot be prepared without a thorough understanding of all published or unpublished writings related to the investigation. Related writings have significance for the method used in the study as well as the content. A design will be influenced in both instances. If satisfactory data are available on some elements of the research, these elements may be omitted and the available data can then be used. Except for the purpose of verification, it is not desirable to repeat studies on problems for which satisfactory data are available. Elimination of parts of a research will permit greater concentration on the remaining parts for quality work.

Related material should include all studies that fall within the framework of the research. This material should be reviewed in a critical manner and summarized in connection with the preparation of the research design. A preliminary design must be prepared before the review of past studies is started, but the final design should not be made until this process is complete. It is also advisable to establish some basis for the evaluation of past studies to eliminate those materials that cannot be used in the study. These criteria may be available or arbitrarily established to directly serve the particular investigation. Using the cited problem, the basis for the selection of source material may be as follows:

1. Writings that are published, or are available in unpublished form, having experimental data in support of the findings, will be selected and applied.
2. Published writings developed on a philosophical basis, but that have had acceptance, will be selected and applied. The test of acceptance will be determined by a review of the critiques and the extent of citations made over a period of time.

Location of the writings is the first needed skill of an educator, whether his interest is research or knowledge of developments.¹ One must become acquainted with all indexes and their scope, review all existing bibliographies, review bibliographies found in publications, and consult authorities on the subject under investigation. Because the administration of libraries will vary with the institution, it is also desirable to know how to obtain references quickly so that valuable time may not be lost.

The significance of the problem. When planning research it is important to review the proposed problem in light of the total problem existing in the field of investigation. It may be found that the problem is a minor one, and that its nature cannot be determined until some fundamental problems are solved; therefore, it would seem advisable to start

¹ Sources and guides to educational literature are presented in Chapter 7.

with the fundamental problem. For example, in the cited problem it might be advisable to first determine "how" sufficient time may be gained for physical education in the public schools. The programs planned for a five day week will probably differ from a three day week. It might be also important to determine the financial basis of the program. These considerations may come first, or may be included in the problem as part of the investigation. Whichever decision for priority is made, the basis for the decision should be the result of an over-view of the problem in the larger or total setting of problems in education.

It is also advisable to review the significance of an investigation according to the application the results may have. The difference the results will make in education should be understood in order to establish the weight of the problem fully, and in order to adequately prepare a design.

PRINCIPLES OF RESEARCH DESIGNING

The elements that should be included in an educational problem solution design are presented in the preceding section. The nature and scope of each element are described and illustrated. It is also stated that in addition to the problem design it is necessary to prepare a design on procedures for the accomplishment of the solution. In order that this activity may be directed in an acceptable manner, principles that include both parts of the design or include the full problem and procedures for its solution are presented. These statements are the guides that should be used when one is confronted with a problem and steps are to be taken to gain a valid solution. Disregarding any single principle may result in an inadequate solution; thus the solution may be found to be invalid.

Principle One. The *identification* and *magnitude* of an educational problem can be established only by systematic analysis with full cognizance about the educational plan under investigation.

Before research should start, the real problem that needs research must be identified. One must know its characteristics and also its size. This information will result only from a systematic analysis of the educational plan proposed for investigation. This analysis should include consultations with others having the same problem, knowledge of current practices, knowledge of desirable standards, and knowledge of the setting that represents the application that is to be made of the findings. The nature of the problem may be further delineated by the application of the following criteria:

1. In what significant manner will the solution of the problem improve education? Knowledge of "what ought to be" the current standards for public school physical education would represent, on the basis of this criterion, a significant problem.
2. What is the network of relationships of the problem with other

problems? A problem on the construction of criteria for the selection of activities is of little significance if the problems pertaining to leadership, facilities, and time have not been solved.

3. What is the relationship of the problem to the modern purposes of education? A study of calisthenics in a society where it may have little value does not appear to lend significance to the problem, or the problem may cease to become a problem.

4. What is the extent of the application of the findings? A problem solution that is the concern of numerous individuals and agencies is more important than one that is the concern of only a few. However, one may still continue the investigation on the basis of the strength of the significance of the findings for one institution.

Principle Two. Research planning begins with a statement of objectives representing directions for the investigation in order that data may be collected to establish the solution on a factual basis.

Statements of objectives yield the directions for the investigation. These statements are usually found in the form of the "statement of the problem" and followed by "statements of sub-problems" after the problem has been identified and its magnitude determined (*Principle One*). It is then necessary to state the directions the investigation must take in order to gain satisfactory solution to the problem. Because the solution of a problem may follow a number of patterns, it is important that these statements be presented so that the exact nature and needs of the problem for solution are given. Early in the planning it will be found that the statements are usually unsatisfactory since they do not represent the problem that exists, or they do not represent the components needed for a satisfactory solution. Continuous revision is therefore necessary. After formulation of the objectives, the next step in the designing may be taken. The statements of objectives must view the problem solution as a whole, insofar as possible, so that statements made are possible of accomplishment. For a systematic presentation, however, the principles follow in a logical sequence. One constantly needs to review in order to make revisions as the design develops. Reference may be made to the cited problem on the physical education program for an illustration of this principle. The solution to this problem is presented in six statements of purpose or objectives (sub-problems).

Principle Three. In order that an acceptable solution to a problem may be gained, it is necessary that the selection of the method or pattern of research be appropriate.

The six fundamental patterns or methods of research are presented in Chapter 9. These are listed as historical, survey, experimental, causal, statistical, and philosophical. Each pattern must fit the problem before valid data will result. An experimental problem solved by using the survey pattern cannot be valid. A description and classification are made of

all methods in Chapter 9. Reference should be made to that chapter in order that this principle may be satisfactorily met.

In the problem cited of the development of a physical education program, the method of research is largely survey, but it is also partly philosophical. The construction of standards is philosophical since it is a matter of the educational worth. Determination of the environmental characteristics, review of published and unpublished writings, and school factors all use the survey method.

Principle Four. Both the inductive and deductive methods of analysis are applied in order to delimit the problem for research. Further definition of the problem results from statements of delimitations and hypotheses.

The statement of the problem (objectives or sub-problems) results from inductive and deductive reasoning. It is necessary to define the problem further by statements of delimitation, or by factors that are not to be considered in the investigation. It is sometimes desirable to state the problem in the form of hypotheses.

Deductive reasoning about a problem begins with the whole and subdivides the problem into its parts. This method was used in the cited example on the physical education program. Deductive reasoning seems to be an acceptable first approach to the definition of a problem; however, it is advisable to follow it with inductive analysis. Inductive analysis consists of a study of all parts of the problem. A combination of these two methods of reasoning will result in a definition of a problem representing the needed data for an adequate solution. One must constantly review the problem as a whole, or selections may be made that represent additional consideration or items that are not needed for a solution.

Reference should be made to the cited problem, which indicates the delineation of a problem by additional statements of delimitations (to one community, for example), or hypotheses (program must place a major emphasis on social outcomes in order to meet community needs).

Principle Five. The assumptions that underlie a defined problem must be acceptable before research may proceed with confidence.

As previously stated (cited problem), an assumption represents a starting point for an investigation and therefore is not included in the investigation. If, therefore, facts are needed for acceptance or rejection of assumptions, the research must be delayed until these facts are gained, or the assumptions must also be included in the study. A research conducted on faulty assumptions cannot be valid. Assumptions will vary in significance. In some instances assumptions are accepted without facts on the basis of common agreement among professional workers. For example, an assumption that schools are necessary in a community does not need to be demonstrated if an investigation is to be made involving the schools.

Reference should be made to the cited example, that which concerns the physical education program, for further illustrations of assumptions. Statements are made, without supporting facts, on the premise that they are reasonable and represent common knowledge and acceptance. For example, such an assumption can be stated as: the program of physical education must be correlated with trends in general education.

Principle Six. The problem design cannot be successfully prepared unless knowledge is gained of all written material related to the problem in methods of research and content.

Research is not repeating work already found to be acceptable. It is the solution of problems utilizing all resources which may be used for a successful solution. One aspect of these resources is the published and unpublished studies. Any material related in whole or in part should be reviewed in order to aid in preparing a problem design but only those items for which data are needed should be included in the investigation.

Only writings that are applicable should be selected; therefore a basis for evaluation is needed. Reference should be made to previous discussions covering this requirement as well as further discussion on related writings (cited problem).

Principle Seven. Only those problems that are educationally worthwhile should be investigated. Worthwhileness must have its reference to individual needs and those of society.

It would be unwise to spend time, effort, and money on problems that have little significance. Education has a responsibility to meet individual needs for social and professional life. The nature of this responsibility would represent an excellent basis for the determination of the worth of a problem. Results of research need not be immediately applied; therefore, worth should not be determined on immediacy. Improved service to the individual and society should be the determinant as to the worthwhileness of a research problem.

Principle Eight. Reference must be made to available techniques for the collection of data or to procedures for their construction as part of design planning for a problem solution.

Criteria for the selection or construction of techniques (Chapter 10) must be a part of the total design for the solution of a problem. The nature of the solution of a problem is limited to available techniques on the collection of data and on available methods for their construction. Before final decision is made on the problem design it is necessary that the instruments to be used are selected or constructed and evaluated by application of the ten criteria presented in Chapter 10.

Principle Nine. Reference must be made to procedures on the analysis of results as part of the planning of a design for a solution of a problem.

The considerations on planning for the analysis of the results of re-

search as well as designs for analysis are presented in Chapter 11. This is part of the planning of the problem solution (problem and procedure designs, Chapters 8, 9, 10, and 11).

Principles of the analysis of data and the designs for analysis should be reviewed in terms of the types of data resulting from application of selected instruments and with respect to the data requirements for an acceptable solution of the problem (Chapter 11). Adjustments may be needed in the plans for the solution of the problem or the selection or construction of data collecting techniques or instruments. It may be found that the investigator lacks the necessary qualifications for the application of techniques or analysis of results.

Principle Ten. The planning for a solution of a problem must also include the administrative conditions that are involved in the conduct of the investigation.

Such factors as time for the conduct of the research, qualifications of the investigator, cost of the investigation, availability of subjects or data, place for the conduct of research, and the changeable nature of the problem are some of the considerations in planning an investigation. Procedures necessary to accomplish the study must be a part of this planning. These factors are not usually incorporated in the problem or procedure designs since they are not involved in the data requirements of the problem. If conditions on the conduct of the investigation cannot be met, there is little point in planning for the solution of the problem.

APPLICATION OF PRINCIPLES

The planning for the solution of a problem includes two major parts. The first consists of defining the problem so that its nature and scope are established. This part of the planning is developed in this chapter. The second part consists of the procedure designs on how the solution of the problem is to be accomplished. This part is developed in Chapters 9, 10, and 11.

NATURE AND SCOPE OF THE PROBLEM**

Sub-Problems***

1. What are the modern trends of elementary and secondary public school education?
2. What are the characteristics of the community, and what represents the needs of education with respect to the characteristics?
3. See pages 194, 195 for full statement of sub-problems.

Hypotheses

1. The program of physical education must place major emphasis on the social outcomes in order to meet the community needs of the students.
2. The program of physical education must also place emphasis on the methods of teaching physical education, particularly as they relate to the democratic process.
3. See page 195 for further discussion and statements.

Basic Assumptions

1. The programs of physical education must be planned according to the general educational implications for physical education.
2. The standards available for the program of physical education are adequate.
3. See pages 195, 196 for further discussion and statements.

Delimitations

1. The investigation is a one-community problem that will include all community factors related to the public school education program.
2. The program for the elementary and secondary grades will include both sexes.
3. See pages 196, 197 for further discussion and statements.

PROCEDURES FOR THE SOLUTION OF THE PROBLEM****Data Needed for Solution of Sub-Problems***Sub-problem one*

Data Needed (Statement expressing the data needs of modern trends of physical education in the following components)

1. philosophy
2. objectives
3. social agencies
4. measurement and evaluation
5. activities
6. leadership
7. administration
8. professional preparation

Sources of Data (Statements indicating data sources)

1. NEA publications and reports on programs of physical education.
2. U.S. Office of Education reports and publications.
3. Textbooks.
4. Research literature on programs.
5. Judgments of experts.
6. State or local programs of physical education.

Techniques for the Collection of Data (Statements indicating techniques to be used)

1. Reference to indexes.
2. Conferences with experts.
3. Correspondence with experts, NEA, and U.S. Office of Education.
4. Review of literature and textbooks.
5. Survey (questionnaire) of state and local programs.

Analysis of Data (Statements indicating how data will be analyzed)

1. Narrators description of trends according to framework (and subdivisions) established in section on "Data Needed."
2. Supporting evidence will be presented for each trend in order that the strength of the trend may be established.

Sub-problem two

etc.

FIGURE 16. Form for the Analysis of the Component Parts of a Problem.*

* This form should be completed in order that the basic methodology and resources may be established prior to the narrative writing of the proposed plan of research.

** Discussion pertaining to the various phases of this form are found in Chapters 7, 8, 9, 10, and 11.

*** A partial illustration of a problem cited in this chapter (Development of a Program of Physical Education) is used to present application of form.

CHAPTER 9

Methodology—Patterns for Problem Solving

Problem solving in education may be systematic, according to planned designs, or may result from judgments or facts gained about a problem without systematic planning or designing. The former constitutes the basis of educational research. Research is solving a problem according to the appropriate methods, techniques, and tools of analysis needed to yield an acceptable (valid) solution. The latter approach is unacceptable according to this definition. It is common procedure, however, to accept as a solution the judgments of others (without any testing as to validity) or to derive the answer from previous experience (which may be the result of inadequate observation). It is, of course, unwise to set educational machinery into operation as the result of data that may be incomplete or erroneous. Planning for a valid solution to a problem therefore becomes the first requirement in problem solving; it consists of defining the problem, and then determining the research methods, techniques, and tools appropriate for the solution. A short cut to this procedure does not exist. The application of appropriate research methods also is made to problems on all levels of operation. It is probably more important for the educational administrator to be properly equipped for problem solving than the college professor, as the former's solutions are immediately applied.

Classification and Application of Research Methods

Agreement does not exist on the classification of research methods. Classification is determined by the starting basis selected by the research writer. Agreement does exist, however, on the application of research methods for the solution of specific educational problems. Valid solutions to problems will result only when the proper methods of research have been applied. The physiological variables correlated with performance in the mile run, for example, will result only when the experimental method of research is used. In this instance, the survey method

will not yield a valid result. Therefore, it is necessary in planning the solution to a problem to determine what methods are appropriate.

The function of a research method provides the most acceptable basis for its classification. According to that criterion, research methods may be classified into three major divisions: the *fundamental patterns or methods* of research, the *techniques* applied within the framework of each fundamental pattern for the purpose of collecting data, and the *tools* applied for the analysis of results on application of techniques. For example, the historical method represents the fundamental pattern for the solution of historical problems; the experimental method represents the pattern for solution of problems when variables may be held constant, and so on. These methods are summarized into six patterns (Step 2, Figure 17). In addition to the historical and experimental methods, these are: survey, causal, philosophical, and statistical. Within the framework of each pattern, techniques are needed to collect data. These techniques are questionnaire, interview, experimental, observational, appraisal, documentary frequency, job analysis, testing, photographic, sociogram, and case study (Step 3, Figure 17). The results of the application of techniques are analyzed by use of qualitative and quantitative analysis tools. The former aid in determining the strength of evidence on the constituent parts of the problem; the latter, the analysis according to the amount of relationship of the evidence (Step 4, Figure 17).

Planning for the solution of educational problems resolves itself into five successive steps.

Step 1: *Identification and definition of the problem.* The systematic procedures for the identification of a problem are presented in Part II of this book. Whether the problem is a problem, or is one which needs research, or is one of immediate judgment, or whether the facts are immediately available can be determined only by systematic analysis as presented in Part II. Once the problem has been identified, it is necessary to define it so that the solution may be directed into an appropriate channel.

Problems are classified into nine categories (Step 1, Figure 17). The function constituting the problem must be defined and related factors such as sex, grade level, and community must be determined. For example, the problem may be the preparation of a physical education program for a particular city. In defining the problem the city must be named, and all related factors in determining the solution of this problem must be established. These related factors are budget, school and community educational philosophy, community and individual needs, geography, facilities, leadership, religious influences, and similar considerations.

When the problem has been defined and interpreted, the next step may be taken.

Step 2: *Selection of appropriate pattern for the solution of the problem.* There are six fundamental patterns for the solution of educational problems (Figure 17). It is noted that any method may be used to solve problems as they relate to the functions of health, physical, and recreation education. Administrative problems, for example, may be solved by the survey method, the philosophical method, or one of the other methods. However, each method is applicable only for the solution of certain types of problems. The basis for judgment of the type is as follows:

1. Problems dealing with *values*: philosophical method.
2. Problems dealing with *past* functions: historical method.
3. Problems dealing with *current* conditions: survey method.
4. Problems solved by *controlled* conditions: experimental method.
5. Problems establishing *cause-effect* relationships: causal method.
6. Problems determining *amount of relationship*: statistical method.

A problem dealing with the construction of a physical education program for a particular community may use several methods for its solution. This problem is partly philosophical, partly historical, partly current conditions and practices (survey), and partly relationships (statistical). The problem may also concern certain influences on the program (experimental), and knowledge of causal influences may be desired (causal). All methods may be used for the solution of this problem; selection of methods therefore is determined by what information is needed in order to yield a valid solution. The nature of the problem will determine the method. Proper accomplishment of Step 1 will serve as the basis for the determination of the method.

Step 3: *Selection or construction of techniques for the collection of data.* Techniques (or instruments) are needed for the purpose of collecting data within the framework of each method. The techniques commonly applied are presented in Figure 17, Step 3. A further guide for the selection of techniques follows:

1. Opinion Data on *Current Practices*: questionnaire, interview, observational, job analysis, documentary, photographic, and case study.
2. Data on *Educational Values*: appraisal, testing, and experimental.
3. Data on *Influences*: experimental, testing, sociograms, observational, appraisal, case study, and photographic.
4. Data on *Individual Status, Educabilities, and Capacities*: testing, experimental, photographic, sociograms, case study, and job analysis.
5. Data on *Records*: documentary analysis.
6. Data on *Job Functions*: job analysis, observational, questionnaire, interview, case study, photographic, and documentary.
7. Data on *Individual Traits, Characteristics, and Attitudes*: observational, sociograms, testing, photographic, questionnaire, interview, case study, job analysis, and documentary.

The proper selection or construction and application of techniques determine the adequacy of the problem solution. Poorly selected or constructed instruments or misapplications cannot yield valid results (Chapter 10).

Step 4: *Selection or construction of tools for the analysis of the results of the application of techniques.* Data resulting from research may be analyzed qualitatively or quantitatively. Qualitative analysis is applied for the analysis of constituents and their relationships, without concern about the amount of the constituents or relationships. For example, in philosophical research, if the problem of analysis is the construction of a philosophy, the analysis is one of determining whether all components or aspects of the philosophy are included and represent the relationships existing among the components according to collected evidence. Qualitative analysis therefore is a tool for the analysis of collected evidence that serves to identify component parts and their relationships in a non-quantitative manner. The process, of course, is systematic. Research starts with a framework of all aspects believed to constitute the solution of the problem; evidence is collected and an analysis made, and conclusions are then advanced.

Quantitative procedure is applicable when the analysis concerns the amount of the constituent and relationships. Using as an example the illustration in philosophy, quantitative analysis is designed to indicate the relative importance of each component of a philosophy. In this connection, measures of amount are needed, and statistical methods (not always necessary) are usually applied.

Whether qualitative or quantitative tools are used in analyzing data is determined by the evidence needed for the solution of the problem. Determining the physiological characteristics of a mile runner, for example, is best established by quantitative analysis between the physiological variables and performance (Chapter 11).

Step 5: *Generalizing the results of the data analysis.* Generalizing the results of research is determined by two factors: the extent of sampling, and the problem scope. When a sample group is selected for research, it must be representative of the full population if the conclusions drawn are to be applied to the larger population. In order that representativeness is assured, the sample must include a sufficient number of units, and the selection of the sample must be random, so that a cross-section of the characteristics of the full group is contained within the sample. In this instance, the conclusions drawn as the result of the analysis of the sample are also applicable to the full population. For example, if a study is made of the public secondary schools in New York State and 25 percent of the schools are used, and the conclusions are to apply to all the schools in the state, it must be demonstrated that the 25 percent is representative or de-

scriptive of all the schools in the state. Representativeness may be determined by comparing a characteristic of the sample (IQ, for example) with the same characteristics of the full population or sample known to be representative.

The second factor that must be considered when generalizing is the scope of the problem. One cannot generalize beyond the evidence gathered; the extent to which one may generalize is determined by Step 1—the definition of the problem. If, for example, the problem concerns the boys in the public secondary schools of New York State, generaliza-

Step 1:

The Problems (Chapter 3)

- | | |
|---|-----------------------|
| 1. Interpretations | 5. Programs |
| 2. Objectives | 6. Leadership |
| 3. Community organizations and auspices | 7. Administration |
| 4. People—status, educability, and capacity | 8. History and trends |
| | 9. Professions |

Step 2:

Patterns for Problem Solving (Chapter 9)

- | | |
|--|--|
| 1. Philosophical (all techniques in Step 3 applicable) | 4. Experimentation (all techniques in Step 3 applicable) |
| 2. Historical (techniques 1, 2, 4, 5, 6, 9 in Step 3) | 5. Causal (all techniques in Step 3 applicable) |
| 3. Survey (all techniques in Step 3 applicable) | 6. Statistical (all techniques in Step 3 applicable) |

Step 3:

Techniques for Collecting Data (Chapter 10)

- | | |
|-----------------------------|-----------------|
| 1. Questionnaire | 7. Job analysis |
| 2. Interview | 8. Testing |
| 3. Experimental instruments | 9. Photographic |
| 4. Observational | 10. Sociogram |
| 5. Appraisal | 11. Case study |
| 6. Documentary analysis | |

Step 4:

Tools for the Analysis of Results (Chapter 11)

- | | |
|--|--|
| 1. Qualitative analysis—constituent analysis | 2. Quantitative analysis—amount analysis |
|--|--|

Step 5:

Generalizing the Results (Chapter 9)

- | | |
|-------------|------------------|
| 1. Sampling | 2. Problem scope |
|-------------|------------------|

FIGURE 17. A Relationship Analysis between Successive Steps in Problem Solving.

tions cannot be made for girls, unless it is demonstrated, with evidence, that the problem is similar.

Relationships. The five steps in problem solving are also presented graphically in order to demonstrate the relationships that exist between these successive steps. It is noted (Figure 17) that the problems of health, physical, and recreation education (Step 1) are solved by application of all methods of research (Step 2). For example, the various problems that are identified as connected with the program may be solved by application of all methods of research. All methods, however, are not always appropriate; some problems are experimental, some historical, and others are survey. It is also noted that, with the exception of the historical method, all techniques may be used to collect data within each pattern of research (Step 3). This does not mean, however, that all are equally as valid when they are applied; the appropriate technique is determined by the problem that is to be solved. The historical method deals with past facts, therefore the techniques applied are limited to this condition. Results of the application of techniques may be analyzed by either qualitative or quantitative tools (Step 4). Which tool is used is determined by which is needed to gain an acceptable solution to the problem. Finally, conclusions drawn from the analysis of data may be generalized to the extent of the sampling and the problem scope (Step 5). A satisfactory solution to any educational problem may be gained by the selection of proper methodology as presented in Figure 17.

THE SCIENTIFIC METHOD—THE BASIS FOR PROBLEM SOLVING

The scientific method is basic to all methods of problem solving in education. The six fundamental methods of problem solving (Figure 17) are patterns designed to solve various problems. All use these successive steps of the scientific method:

1. *Identify and define the problem.* This has been previously presented (Step 1). It is the starting point of scientific investigation; unless the problem and the elements needed for its solution have been established, systematic research cannot begin.

2. *Review literature.* Scientific problem solving begins with a complete review of all written material available on the problem. The review may cause a modification of the problem design, or the solution for the problem may be found in available writings. One can locate pertinent written material by consulting authorities on the problem, reviewing bibliographies, referring to card catalogs, scientific indexes, educational indexes, indexes of popular literature, and master and doctorate studies. No single source will yield all available literature on a problem. Resources on how to locate educational information are presented in Chapter 7.

3. *Formulate an hypothesis or hypotheses.* Formulation of an hypothesis, or hypotheses, establishes direction. An hypothesis is a statement of direction that is to be accepted or rejected as the result of collected evidence. For example, a statement that ability in the mile run is entirely a physiological matter serves as an hypothesis and can be accepted or rejected as the result of research. Such a statement limits the field of research, sensitizes the investigator to a particular aspect of the problem, and reviews the problem as a whole before it is divided into its various parts.

4. *Collect data.* The instruments used for the collection of data are presented in Figure 17, and discussion concerning each instrument is found in Chapter 10. Instruments must be selected to meet the conditions of the problem. A questionnaire cannot be used when valid results will occur only if the interview is used. Collected data must be valid, otherwise efforts are worthless.

5. *Analyze data.* The procedures for the analysis of data are presented in Figure 17 and Chapter 11. All collected data are analyzed by qualitative and quantitative methods.

6. *Draw tentative conclusions.* Statements of fact based on the evidence resulting from research are made in the form of tentative conclusions. These statements represent the answers sought by research; they may be positive or negative, favorable or unfavorable, and must be tentatively accepted. A valid conclusion must have complete factual support.

7. *Test tentative conclusions.* Research should be repeated using another sample group from the same population. If the first and second samples are representative of the population, the results should be identical. Verification of findings is important as it is the only final test of validity.

8. *Establish final conclusions.* After results have been verified, final conclusions may be made. These statements represent the solution of the problem.

9. *Generalize results.* Generalization can be made only according to dictates of the sample and the scope of the problem (Figure 17). One cannot generalize solutions for a group that has not been included in the research. The solution of a problem on the senior high school level usually cannot be generalized to include the junior high school level.

THE FUNDAMENTAL PATTERNS OF PROBLEM SOLVING

The Philosophical Method

Nature and scope. The philosophical pattern of research is reflective thinking in a defined framework; it may be further defined as a systematic

analysis of data pertaining to educational values. The worth of educational materials is determined by evidence collected in philosophical research.

Philosophical research is applied to all functions of health, physical, and recreation education (Figure 17). The problems deal with values, worth, outcomes, needs, etc.—all in terms of what ought to be the directions for education. It establishes evidence on relative values. The validation of principles or criteria to be applied for the evaluation of educational practices is an example of philosophical research.

Application (steps) in philosophical research. The steps follow those of the scientific method. The unique characteristic of philosophical research is the problem to be solved (values) rather than the procedure in applying the method. The steps are:

1. Identify and define the problem. All elements related to the problem must be included. For example, a study dealing with the relative worth of health activities in a high school needs to be defined according to sex, grade levels, community resources, and so on, together with all aspects of the health activities.

2. Establish an hypothesis or hypotheses. In the illustration cited above, an hypothesis may be stated as follows: the value of health activities differs according to the purposes established for secondary education. The results of research will determine whether this hypothesis is true or false.

3. Examine underlying assumptions. It must be established whether the assumptions initiating philosophical research are acceptable. In the cited example, an assumption pertaining to this problem is that the purposes of secondary education are established and valid; if this is not true, the results of the research are worthless.

4. Collect data. All techniques (Figure 17) may be used for the collection of data in philosophical research. The technique selected must yield valid data. The questionnaire, for example, is not a useful instrument in the problem example cited; the appraisal technique is the most valid technique for this problem.

5. Analyze data. Qualitative analysis is a common procedure in the analysis of results. In the cited example, the application of criteria for the evaluation of the health program may be a matter of qualitative analysis; the composition of the program that meets the criteria is thereby determined.

6. Establish conclusions. Statements of conclusion are made on each phase of the problem. In the cited example, on the worth of health activities, conclusions are drawn on each activity. Each conclusion must be supported by facts.

Descriptive criteria for the evaluation of philosophical research.

Whether or not the philosophical method is properly applied must be determined. The following criteria may be used as a guide in both the application and the evaluation of philosophical research.

1. The examination of values and underlying assumptions is fundamental in philosophical research.

2. Science and philosophy are compatible. Philosophy determines the worth of materials as a basis for educational direction; science determines how materials may be implemented or how direction may be accomplished. How materials are used has its explanation in philosophy.

3. The facts for philosophical research may come from the application of any research method or technique.

4. The use of an hypothesis is a common starting point of philosophical research. The hypothesis, however, must be consistent with known facts and judgments.

5. The skeletal framework of the philosophical method is the scientific method.

6. The limitations of the philosophical method are found in its use by uninformed persons having opinions rather than systematically organized facts.

7. Philosophical research must start with a defined problem organized around a framework containing all elements needed for the solution.

8. The conclusions of philosophical research must be supported by facts resulting from both qualitative and quantitative analysis.

The Historical Method

Nature and scope. The historical method of research is applied to problems concerned about past events. The research may be descriptive, comparative, or analytical; it may be also pure or applied. Pure historical research deals entirely with valid data to permit a better understanding of past events. Applied historical research serves as a basis for the solution of contemporary problems. It supplements the solution but does not serve as a solution in itself. A study of the influence of Swedish physical training on American physical education during the first half of the twentieth century is an example of pure research; a study of the construction of a philosophy of American physical education, utilizing past data, in part, is an example of applied research.

The only valid basis of historical research is the use of *primary* data. Such data are obtained from valid historical records and historical remains. Some of these materials are documents, paintings, films, songs, utensils, and tools. Secondary data that are once or more times removed from the original, have personal interpretation which usually invalidates them. External and internal criticism need to be applied to primary data in order to determine the genuineness or the validity of the materials. All primary data (written in the original) are not, however, always valid. External criticism deals with the genuineness of the document—why, where, when, how, and by whom written. Internal criticism deals with the contents of the document. Whether a bias has served as the motivation for writing, whether illogical development is evident, and so on, need to

be established before the document may be accepted as valid material for historical research.

The historical method is applied to the solution of problems as they pertain to all functions of health, physical, and recreation education (Figure 17). These problems may represent different eras or historical periods. A study of physical education during the twentieth century in the United States is an example. The nineteenth century aspects of the problem may also be studied.

Application (steps) in historical research. Steps in application of the historical method are those of the scientific method, adapted to fit this pattern of research. Of major importance in this method are the materials used for problem solving; validity of these materials is necessary. The successive steps in application of the method are:

1. Identify and define the problem. Factors to consider in defining the problem are time periods, types of data needed to solve the problem, population (sample) to be considered, etc. Considerations are similar to those already presented.

2. Establish an hypothesis or hypotheses. An hypothesis for research might be stated as follows: The major influences on the development of physical education in the United States are World Wars I and II. This hypothesis starts research; the facts collected will indicate whether or not the statement is fully or partially true or entirely false.

3. Examine underlying assumptions. Assumptions are starting points of research. They must be accepted as valid or research should not start until data are presented in support of the assumptions. In the cited example (Step 2), one assumption underlying this research is that the military activities of World Wars I and II are functionally related to physical education development in this country; it is more than just an association of two activities. If this cannot be supported it is hardly worthwhile to make the study.

4. Accumulate, classify and criticize data. When the framework for the problem has been established, data should be accumulated on each phase of the problem. The techniques used for this purpose are (Figure 17) the questionnaire (usually not applicable), interview (to set the stage), documentary analysis (most common), observational (viewing remains, tools, etc.), photographic (common procedure of identifying materials), and appraisal (evaluation of records or data). After data are accumulated, it is then necessary to classify them properly according to the original framework and according to the selected historical periods. For example, the first half of the twentieth century may be divided into at least three periods for study of educational problems—1900 to World War I, World War I to World War II, and after World War II. Data must also be criticized internally and externally before final acceptance.

5. Analyze data. The collected data need to be analyzed (largely by

qualitative analysis, although quantitative analysis may also be applied) and synthesized in order to correlate the evidence in terms of each phase of the problem. In the cited problem (Step 2), the influence of the two world wars must be developed in terms of each activity of the wars and physical education. For example, in reference to the conditioning program of the wars, what is the relationship of this conditioning program to the activities program in physical education?

6. Establish conclusions. Conclusions are presented for each phase of the problem according to the evidence available. These statements constitute the solution for the historical problem. In the cited problem (Step 2), the influence of the two wars on physical education should be established. The hypothesis is either accepted, rejected, or partially accepted.

Descriptive criteria for the evaluation of historical research. The following criteria may be used in evaluating not only the use of the historical research method, but also as guides in applying this method toward the solution of historical problems. These criteria are:

1. Historical research must follow an orderly and systematic procedure; the scientific method is applied.

2. Primary source materials constitute the only factual basis for historical research.

3. Truth, determined by supporting facts, must serve historical research; unsupported or biased propaganda must be eliminated.

4. Both internal and external criticism of historical data must be made.

5. The historical research worker must understand the terminology of each historical period, and such research concepts as cause, effect, influence, control, tendency, and trend.

6. The time sequence in historical research should be of sufficient length to demonstrate the influence of the variables constituting the problem.

7. Historical research must be planned, conducted, and analyzed in a setting of each historical period. Factors must be identified, measured, and interpreted.

8. The nature of transmitted historical material must be established; i.e., data recorded for the purposes of history, or data recorded for contemporary use without the preparation of the material for historical uses.

9. The historical investigator must distinguish *fact* from *hypothesis*.

10. The factors constituting the variables of the research problem must be identified for each historical period, and an adequate, representative, and random sample drawn.

11. Facts gathered in historical research should be analyzed according to the framework of the research, including all elements needed for the solution, and by either qualitative or quantitative analysis.

The Survey Method

Nature and scope. The survey method of research is a planned and systematic process of solving problems through available records or judgments. The purpose of a survey is to determine current practices, related conditions, and effectiveness of educational programs. Additional

knowledge is gained only through interrelationships established by the analysis of available records and judgments. Contributions to new knowledge about the educational process or about the educational product (individual and group) is not gained by the survey method.

The survey method is applied to the solution of problems pertaining to all functions of health, physical, and recreation education (Figure 17). Survey information is usually desired by educational administrators and teachers as a guide for the conduct of educational activities. Common practices and those desired (judgments) may be determined through surveys.

Application (steps) in survey research. The steps in survey research also follows the steps in the scientific method. Adaptations of this method to the survey are as follows:

1. Identify and define the problem. The problem must be stated in terms of all data needed for its solution. A national survey of health education in the public secondary schools must include consideration of such factors as sex, grade level, budget, facilities, and the scope of health education. Definitions and delimitations indicate the factors that are to be included, and those that are to be excluded.

2. Establish an hypothesis or hypotheses. An hypothesis is usually stated to give direction to the problem. In the cited problem (Step 1) an hypothesis may be stated as "Health education in the secondary schools of the United States is inadequate due to the lack of supporting conditions." In the solution of this hypothesis, standards of an acceptable health education program must be stated to provide a basis for accepting or rejecting the hypothesis.

3. Examine underlying assumptions. In beginning a survey that which is assumed must be examined. In the cited problem (Step 1), it may be assumed that health education programs are inadequate, and thus the problem becomes one of determining the factors causing inadequacy. If this assumption cannot be accepted, the problem should be re-directed, the assumption perhaps becoming the problem for research. Examining assumptions is necessary in all survey studies.

4. Collect data. All techniques for the collection of data are used in surveys (Figure 17). The appropriate technique must be determined according to the nature of the problem. When surveying the scholastic abilities of secondary school pupils the testing technique must be utilized. For surveys national in scope, the questionnaire must be used, at least for data that can be validly obtained by this technique.

5. Analyze data. Both qualitative and quantitative analysis are used on survey data (Figure 17). Charts, tables, and graphs are common techniques used in the presentation of survey findings.

6. Establish conclusions. The extent of the conclusions is determined by the scope of the problem and extent of sampling. In the cited example

(Step 2) the hypothesis is either accepted or rejected in whole or in part as the result of analyzed evidence.

Descriptive criteria for the evaluation of survey research. Criteria used to test the application of survey methods and also to test the methodology of reported surveys are:

1. The survey must be a cooperative process; the degree to which this is possible must be determined before research is started.
2. Research procedures must be defined and standardized with an appropriate selection of techniques for the collection of survey data. Instruments must yield reliable and valid results.
3. Norms of survey research must be representative of the population and free from extraneous influences.
4. Sampling reliability must be determined prior to the termination of the survey.
5. The sample is the most fundamental component of survey research. The nature and scope of the survey must be clearly defined, and an adequate, representative, and random sample drawn from this population.
6. Descriptive, comparative, or analytical statistical tools are usually selected for adequate analysis of data. In some instances qualitative analysis is used.
7. The extent of generalization from survey data must fall within the framework of the selected population and problem.
8. The results of survey usually yield a norm.

The Experimental Method

Nature and scope. The experimental method is applied to problem solving when the factors needed for the solution of the problem may be controlled and their influence determined. The experimental method applies, therefore, only to problems in which the use of controls is possible. For example, it is possible to determine the influence of room temperature and humidity on performance in an indoor mile run by changing the temperature and the humidity and by using the same subjects, if all other conditions in preparation for the run remain constant.

The experimental method may be used for the solution of problems as they relate to all functions of health, physical, and recreation education (Figure 17). Controls may be exerted by laboratory methods and, in some problems, by use of statistical methods. Measures correlating with performance in the mile run may be statistically analyzed so that the net influence of each variable may be determined. This is equivalent to holding all factors but one constant in controlled laboratory experimentation to determine the net influence of each variable. The influence of the various factors may be determined, therefore, by laboratory controls (equalizing all factors except one), or by statistical controls (determining net influence by multiple or partial correlation).

Application (steps) in the experimental method. The experimental method also follows the steps of the scientific method. Special adaptations, however, are made. Experimental method steps are:

1. Identify and define the problem. The problem must first be established; the factors needed for its solution are outlined, and then the procedure to determine the net influence of each factor on the problem (laboratory or statistical procedures) may be planned. When the problem has been defined, it is necessary to consider such conditions of experimentation as time and place, procedures on records, techniques for administration of instruments, and subjects. All these details must be planned in advance of experimentation. In a study of the influence of breathing pure oxygen on performance in the mile run, all the stated conditions must be established. The laboratory method of experimentation would be used to solve this problem, due to the fact that varying amounts of oxygen can be administered to the same subjects, and all other influences may be held constant.

2. Establish an hypothesis or hypotheses. In most experimental studies it is helpful in gaining a sharper direction for research if an hypothesis is established. In the cited problem (Step 1), an hypothesis may be stated: "Breathing various amounts of pure oxygen is beneficial according to a linear relationship in performing the mile run." Experimental procedure is then directed to gather data for the acceptance or rejection of this hypothesis in part or in whole. The stated hypothesis, of course, must be reasonable according to information about the physiology of oxygen breathing and performance; the hypothesis cannot be in disagreement with known facts.

3. Examine underlying assumptions. In the cited hypothesis (Step 2) it is assumed that a relationship exists between oxygen consumption and performance in the mile run. The problem is, in this example, to determine the nature and amount of this relationship. If this assumption is doubtful (not in this instance), research must be conducted on the assumption before experimentation begins on the problem.

4. Collect data. In experimental research, all techniques are used to collect data (Figure 17). However, the basic means of collecting data are fundamental patterns; all techniques or instruments are supplementary to these. The basic patterns are one-group, equivalent groups, and rotational groups. The one-group pattern is used when one or more experimental variables are applied and the changes noted; the pattern is valid if one variable does not influence the other variables. All influences must begin at the same starting point. The equivalent group pattern consists of two comparable groups in respect to all factors related in the experiment; the age of group members, for example, must be the same if age is an influence. One group is used as a control on the other as the experimental group; any changes are then due to the variable under investigation. The rotation group technique is a combination of the other two; the application of the experimental variable is rotated between and among groups. This technique is valid when changes produced by

the experimental variable are not "carried-over," or are neutralized by equivalent influences. Within the framework of these patterns, data collecting techniques or instruments must be used for the measurement of time, force, weight, and other factors (Chapter 10).

5. Analyze data. The quantitative procedures of analysis are the most common in experimental research. Statistical methods are standard procedure to determine the amount of influence and the relationships of each variable. Laboratory procedures will also yield data on amounts; quantitative analysis in chemistry, designed to determine the amount of each constituent, is an example.

6. Establish conclusions. In experimental research, the conclusions are evident due to the fact that relationships are expressed in amount. The relative differences in the influences of various factors can therefore readily be determined.

Descriptive criteria for the evaluation of experimental research. The experimental method of research requires, in most instances, skilled technicians. Care in application of the experimental variables and control of conditions of experimentation are of major importance. The following criteria should be useful as guides for planning and evaluating the results of experimental research:

1. The experimental method should be applied only in those instances where phenomena can be controlled and when solution of the problem can be accomplished in a controlled situation.

2. The time for experimentation must be of sufficient length to determine the magnitude of the influence on dependent variables.

3. Precision must be planned according to the nature of the problem. The range of chance error serves as a basis for interpretation. Evidence on reliability, objectivity, and validity of instruments must be determined.

4. The design of the experiment must be planned to negate the influence of extraneous factors and to yield the most valid estimate of the influence of factors investigated.

5. Verification in experimental research is essential.

6. Experimental research should be conducted on an assumption that individuals differ physically, socially, emotionally, and mentally.

7. A record should be made of all details in experimentation.

8. The population sample selected should be representative of all factors to be investigated. The total range of each factor should also operate to the limits defined by the problem.

9. The sample selected must be adequate, representative, and random and have a high degree of reliability.

10. The use of analogy in drawing influences from experimentation is not desirable.

11. Results of experimentation must be interpreted in light of all related factors of influences and in terms of reliability, objectivity, and validity of experimental patterns and instruments.

The Causal Method

Nature and scope. The causal method of research seeks to establish cause-effect relationships among the factors constituting the solution to

a problem. All other methods of research are satisfied by factors that go together without establishing the factors that are the causes and those that are the effects. Causal research may be conducted in a controlled laboratory setting where all variables are held constant except one, or in a setting where data are collected on variables and the "net" influence of each is determined by statistical methods. It is important to note that causal methods of research simply constitute a pattern that will identify variables that go together. Whether cause-effect exists, or which variable is the cause and which is the effect, or whether both are causes or both effects, must be determined by supporting evidence establishing this relationship on a content basis. For example, causal research may show that performance in the mile run will improve with the amount of pure oxygen inhaled. Whether oxygen is a cause, and performance in the mile run the effect, must be physiologically explained. If this is not possible, one does not know whether this relationship may be pure association, or which is the cause and which is the effect.

Causal research may be applied to the solution of problems of all functions of health, physical, and recreation education (Figure 17). Sufficient knowledge is needed, however, to be able to interpret relationships as cause and effect; studies are very few due to a lack of this knowledge. Causal research represents the highest order of educational research.

There are four fundamental methods or patterns of causal research. The one used will be determined by the nature of the problem to be solved. Each is here described sufficiently to indicate the nature of its application in problem solving.

1. Causal-comparative method. This method seeks to establish cause-effect relationships by comparison. For example, if pure oxygen is inhaled and improved performance is found, and when air is breathed poor performance is noted, oxygen is established as a cause and performance as the effect. If the phenomenon occurs in the presence of the variable, and does not in its absence, there is a basis for determining cause and effect in this method. However, the relationship must be explained by physiology in order to avoid misinterpretation that may come through association.

2. Causal-case study method. This method seeks to establish cause and effect by use of the case study technique. Again, after a study of several cases in which the variables are present and the phenomenon occurs and in absence it does not, this serves as the basis for establishing cause-effect relationships. Supporting research and theoretical evidence are needed to substantiate this relationship. A case study involves a systematic record of all pertinent data about an individual, group, institution, community, etc., in order to establish the causes for phenomena that occur.

3. Causal-genetic method. This method aids in establishing cause-effect relationships by recording all pertinent data over a period of time long enough to establish the relationship. Studies in the factors related to growth, development, learning, and training are examples of causal-

genetic studies. In order to establish the causal influences of diet on performance in the mile run, for example, this relationship must be observed over a period of time. When the relationship has been established, research may stop. Again, supporting research evidence and theoretical explanations must substantiate the cause-effect relationships.

4. Causal-correlation method. This method is simply an aid in determining the magnitude of cause-effect relationships. Whether relationships are causal cannot be determined by correlation; supporting evidence is needed. The causal-correlation method utilizes path coefficients as an aid in making a causal analysis. Path coefficients are used to show direct and indirect causes as they relate to given effects. Amounts of relationships may be presented in percent.

Application (steps) in causal analysis research. The four fundamental patterns of causal analysis follow the same general steps in application. The specific differences are found in the design for the solution of the problem. The steps are:

1. Identify and define the problem. The fundamental pattern applying to the solution of a problem must be determined—genetic, case study, comparative, or correlation. It is also necessary to establish the variables believed to be the causes and those believed to be the effects. The pattern will serve as an aid in establishing causal relationships. For example, in determining the causes for performance in the mile run the relationships might be listed as: oxygen consumption, physical skill, attitude, and blood volume. Causal research will aid in establishing these relationships and their magnitude.

2. Establish an hypothesis or hypotheses. In causal research particularly, the use of hypotheses is of significance. Each hypothesis established must be supported both by research and theoretical evidence demonstrating a possible cause-effect relationship. The hypothesis can then be tested and either accepted or rejected. The hypothesis that oxygen inhalation is a cause for improved performance in the mile run is an example.

3. Examine assumptions. All assumptions must be examined in causal research. In the example cited (Step 2), an examination of the physiology of oxygen consumption and performance may establish the assumption as reasonable for research.

4. Collect data. All techniques are used for the collection of data in causal research (Figure 17); selection is determined by the problem to be solved.

5. Analyze data. Quantitative analysis of causal data is normally applied, although qualitative analysis may also be used. Quantitative analysis is usually desired not only to establish the related factors but also the amount of the relationships.

6. Establish conclusions. The conclusions indicate which factors are causes and which are effects. If possible, conclusions should indicate the

amount of relationship. In the cited example (Step 2), conclusions on the physiological analysis of the mile run will indicate which variables are causes and the amount of the relationship.

Descriptive criteria for the evaluation of causal research. It is advisable to review each of the following sets of criteria before proceeding with causal research. Each criterion has a special significance when the causal method is applied.

Causal-Comparative Criteria

1. Cause and effect relationships may be inferred or established by fact.
2. Causes usually occur by degrees and usually there is more than one cause for each effect.
3. Two isolated variables (cause-effect) may both be effects or causes.
4. Two variables may go together but may not be related (cause-effect). This may be only association without any functional relationship.
5. The causal-comparative method may be applied in a natural operating situation or under controlled experimental conditions.
6. Causes may be identified by the method of agreement or difference. The relationship, however, must be established by fact or theory.
7. The phenomenon of catalysis may be erroneously identified as cause; e.g., funds may be identified as a cause of a good program when the real cause may be leadership.
8. The element of conducive cause must also be identified and established in relationship with a given effect.
9. Cause may be dichotomous, categorical, or continuous; measures of these qualities may be qualitative or quantitative.
10. The amount of cause may be determined by experimental quantitative analysis or by statistics; the latter is applied when all factors operate in a normal situation.

Causal-Case Study Criteria

1. Case study research is used when one race, individual, school, or community has many typical causes and can be identified only according to circumstances of that situation.
2. Cause-effect relationships are established in the case study by the method of presence or absence; that is, if phenomenon occurs in presence of the variable but does not in its absence.
3. The case study usually begins with an hypothesis concerning the factors related to the phenomenon to be studied. Data are then gathered on each factor. Cause-effect relationships are either inferred or established.
4. Analysis of case study data may start with cause-effect relationship within each case. Analysis is usually made between and among the several case studies to determine common causes; such analysis may yield additional evidence on cause-effect. Group analysis, however, must be made with caution.
5. Statistical methods may be used in determining the relationship among various factors of the case study and also when prediction is desired. When comparing several case studies, more advanced procedures such as variance analysis, causal analysis, and factor analysis may be used.
6. All techniques used for the collection of data in educational research may be used in the case study. Of course, an appropriate selection must be made (Figure 17).

Causal-Genetic Criteria

1. Causal-genetic research is used when cause-effect relationship can only be established over a period of time. Observation will aid in the identification of cause-effect relationship.
2. Causal-genetic research may involve the same individual or same group of individuals over a defined period of time, or different individuals or different groups of individuals over a defined period of time.
3. All methods of research may be used in causal-genetic research (experimental, historical, survey, philosophical, etc.) (Figure 17).
4. All techniques used to collect data in educational research may be used in causal-genetic research (questionnaire, interview, etc.) (Figure 17).
5. When analyzing the results of individual causal-genetic research, it is first necessary to identify the variables related, and then to establish the magnitude of the cause-effect relationship. When analyzing the results of group causal-genetic research, it is necessary to determine cause-effect relationships within each group and then between and among groups. The latter will establish the common factors.
6. Statistical methods may be used to establish the degree of cause-effect relationships. Relationship may be established within each group (or individuals) or between or among groups (same or different individuals).
7. The causal-genetic research must be allowed to operate until relationship has had an opportunity to be demonstrated. This will vary with each study.
8. The statistical "levels of confidence" must be established for each cause-effect relationship; that is, when causes are considered statistically significant.

Causal-Correlation Criteria

1. Correlation is a measure of association. Whether the association can be demonstrated to be a cause-effect relationship must be established by fact or inferred.
2. The degree of relationship existing between two variables (cause-effect) can only be measured quantitatively by correlation; speculative methods yield approximations.
3. Cause-effect relationship may be linear or curvilinear. Which relationship exists must be determined before correlation is applied, or determined by examination on the application of correlation.
4. The cause-effect correlation coefficient must be interpreted in light of the magnitude of chance errors (standard error according to levels of confidence).
5. Cause-effect correlation cannot be interpreted as pure relationship. The entire network of causes and effects must be considered, and for accurate interpretation—measured.
6. Correlation may be used in determining all causal relationships—whether dichotomous, categorical, or continuous. Qualitative, as well as quantitative relationships may also be established by correlation.
7. Both direct and indirect causes may be established in degree by correlation. The path coefficient method is used in this connection.
8. The degree of relationship existing between or among variables is determined by correlation when the study operates in a normal setting; that is, with all variables operating.
9. The size of the correlation coefficient is regulated by the range of operation of causal factors.
10. The correlation coefficient does not indicate percent relationships, but may be translated into percentage values. The geometric concept follows in the

correlation range (0 to 1.00); that is, changes in the correlation coefficient in the .90 to 1.00 range is considerably more significant than the same changes in the .0 to .10 range.

The Statistical Method

Nature and scope. Statistical methods in research are usually considered aids (tools) in the analysis of data rather than a method or pattern of research; in fact, statistics are used in both applications. Statistics may be used as a pattern of research when the fundamental concern is to determine relationship, or when the problem to be solved is one of determining the factors constituting a set of relationships. The statistical method is also used in causal analysis; in this connection it is used to indicate cause-effect relationships, not association as it is herein presented. The system of prediction and factor analysis are examples of statistical patterns of research. Cause-effect determinations are not proposed.

All functions in health, physical, and recreation education contain problems that may be solved by statistical research (Figure 17); it is, however, most frequently applied to problems in measurement and evaluation.

Application (steps) in statistical research. The steps in the application of the statistical method of research also follow the steps of the scientific method. These steps, modified to fit the pattern of statistical research, are:

1. Identify and define the problem. It is necessary to establish the data needed in order to solve the problem. For example, if it is desired to determine the factors constituting motor ability in basketball, the problem needs to be defined so that a measure is obtained for all basketball motor ability skills. The published and unpublished material needs to be searched in this instance to identify the various skills and gain a measure of each. This yields a definition of the problem, as far as variables are concerned, and research is then ready to begin.

2. Establish an hypothesis or hypotheses. In the cited problem (Step 1), an hypothesis that would direct the study may be stated: "There are a certain number of unitary factors which constitute skills ability in basketball. These factors are fewer than the present measures of skills and greater than one." This hypothesis directs the study to a factor analysis of the various measures of skills. It is a reasonable hypothesis, therefore research may proceed.

3. Examine underlying assumptions. The assumption underlying the cited problem (Step 1) is that there are certain unitary factors of skills ability in basketball and that research is necessary to determine them; this assumption may be granted because of available present evidence, therefore research may proceed without testing the reasonableness of the assumption.

4. Collect data. All techniques are used to collect data in statistical research (Figure 17); the most common technique is testing. The data

must be quantitative in nature; that is, contain two or more divisions in the measurement of each skill (cited example, Step 1).

5. Analyze data. In this respect the uniqueness of the statistical method is established. In the problem cited (Step 1), the factor analysis method is used to determine the unitary factors of skills ability in basketball. This method begins with a set of intercorrelations of all variables used in the research, and then statistical analysis may continue until the factors have been isolated. After the isolation of the factors, each factor must be described; this description is dependent on how much is known about basketball skills.

6. Establish conclusions. The conclusions drawn in the cited example (Step 1) will be presented in the form of statements to indicate the number and description of each factor constituting skills ability in basketball. Other statistical studies (prediction, for example) will indicate the variables needed for a certain level of prediction.

Descriptive criteria for the evaluation of statistical research. The criteria presented are those that should be considered when statistics are used both as a method of research and as a tool for the analysis of data. In the instances when statistics are used as a method, both activities occur simultaneously. These descriptive criteria are:

1. Statistical methods of research deal with problems concerned with analysis of relationships, analysis for the isolation of factors, analysis for prediction, and statistical descriptions and comparisons.

2. Correlation is a measure of association; cause-effect relationships are not indicated.

3. The assumptions underlying correlation or other statistics must be examined in terms of the collected data in order to determine the applicability of each statistic.

4. Data for statistical research must be quantitative in nature; or if qualitative, the data must either be transformed into quantitative data or made capable of statistical treatment in its qualitative form. The scope of statistical methods will determine types of data to be analyzed.

5. Sampling for correlational research must yield a complete range of data for each variable. Variability has a marked influence on correlation. Sampling reliability must be high (.90 and above).

6. All techniques may be used in the collection of data for statistical research (Figure 17).

GENERALIZING THE RESULTS OF RESEARCH

Step 5, Figure 17, shows that the bases for generalizing the results of research are sampling and problem scope. The problem, and its definition, set the framework for research. This has been presented as it relates to the six patterns for problem solving. Generalizations cannot go beyond the definition of the problem.

After the problem has been defined it is necessary to establish the

population group concerned about the solution of the problem, or the population group to which the results will be applied. Descriptive criteria that will aid in establishing the sample to be used in the solution of the problem and in the definition of the problem to be solved are as follows:

Sampling Criteria

1. Research may be based on a census or a sample. The former constitutes all members of the population selected for research; the latter is a portion of the population. A sample must be representative of the full population if the results of research are to be applied to the population. Representativeness is gained by taking a sufficient number of subjects and by random selection.

2. The errors of sampling are classified as *systematic* and *chance*. Systematic errors are errors of the same magnitude and in the same direction (inaccurate instruments, for example). These errors may be removed by correct calibration of instruments, and proper validation of techniques. Chance errors are unsystematic errors; that is, they will vary with each measurement (the varying influence of noise during an examination, for example). Chance errors may be treated statistically by the averaging process (throw for a target), by the selection of the largest measure when several are administered (grip strength), or by selection of the smallest measure of several (time for 100 yard run). In all instances chance errors are removed by repeating measures on the same subjects and treatment as cited.

The sources of errors resulting when a sample is drawn from a population may be classified as follows:

a. Measurement errors. These result when techniques or instruments are applied.

b. Errors of estimate. These errors may result when sufficient data have not been obtained to significantly reduce the size of the standard error.

c. Errors resulting from population changes. If the characteristics of a population change after the sample has been drawn, errors will result when descriptions or predictions are made about the population.

d. Sampling errors. These result from non-response to questions and the selection of the sample. Representativeness of the population needs to be demonstrated.

3. To insure representativeness, samples of groups from a population should be selected on the following bases:

a. Random. Selection is made at random so that the sample will be representative of the population. For example, selecting every third item of a list or group would be random sampling. A generous number must be selected to insure the inclusion of all characteristics of the population.

b. Selective. Sampling factors for a population group may be defined and those subjects selected who come within the scope of the definition

of factors. For example, a sample may be drawn for male subjects, ages 18-21, with weights 110-130. Representativeness is then gained within these limits. A random selection will yield representativeness, if sufficient numbers are selected to yield high reliability (.90 and above).

c. Stratified. A stratified sample is one that takes a sub-sample from a number of divisions of the whole sample. For example, in a study of public elementary schools, samples may be taken from each grade in order to insure grade representation. Random selection is then made within each grade. Each sub-sample is tested for representativeness.

4. Adequacy in number of subjects in sampling is established when the sample is representative of the population group selected and when the sampling chance errors are reduced to insignificance. When representativeness is unknown one must be satisfied with internal consistency; that is, the results are always approximately the same. If some related characteristics are known about the total population, representativeness may be gained by comparing the sample with these characteristics. Age comparison, for example, is sometimes made. If the sample is insignificantly different from the population the sample may be judged representative.

5. Factors used for the selection of a sample (selective sampling) are those yielding varying solutions to the problem. Age difference, types of schools, and community wealth are some examples basic to sampling that must be considered in educational problems.

6. Statistical methods are used to estimate the magnitude of chance errors of sampling. This estimate is used as a guide when generalizations are made. The statistics are the standard error values interpreted according to "levels of confidence." The values yield guides in the form of numerical ranges that indicate the probable error in sampling. The one percent level of confidence, for example, is the highest order of confidence.

7. In some instances it is necessary to "weight" the component parts of a sample in order to yield "relative" importance of each component. Sampling used to determine the results of voting is an example. The rating strength of each component must be established and numbers drawn from the population in the defined ratio of strength.

Problem Scope Criteria

Before a design may be prepared for a solution to a problem, the *nature* and *scope* of the problem must be known. The problem must be described, the description including all details involved in the problem. The designing for a solution may then begin and should include the following (Chapter 8):

1. A complete statement of the problem must be presented. An example may be as follows: "It is the purpose of this study to determine the physiological variables related to performance in the mile run."

2. In order to simplify the solution, the statement of the problem should be subdivided into its component parts. In the cited example (Criterion 1) the sub-problems may be:

a. What physiological variables should be selected to measure ability in the mile run?

b. What are the physiological characteristics of certain selected mile runners?

c. What are the performances of selected subjects in the mile?

d. What are the relationships of the physiological variables and the mile run?

3. It is often desirable to establish an hypothesis in order to direct research more clearly. In the example presented (Criterion 1), an hypothesis may be presented that certain stated physiological variables are related to performance. The research may then be directed to test these selected variables.

4. The basic assumptions underlying the problem must be stated and examined. In the example presented, it is assumed that physiological variables are related. The problem becomes one of the amount of relationship; this seems to be a reasonable assumption.

5. All problems should specify delimitations. What is or is not included in the study should be stated. In the example indicated, delimitations may be defined according to age, sex, physical condition, and previous training. All related factors must be held constant or included (and measured) in the research.

6. All problems should record and correlate related studies. A review of the writings on the problem is a requirement, since the problem solution may be found or information may be gained that may change the nature of the problem.

7. The significance of the problem should be stated. Whether the problem is worthy of study must be determined in light of all other problems that are related. In some instances a larger problem needs to be solved in order to give direction to a subordinate problem.

8. With the problem defined, it is possible to select the appropriate research method or methods, technique or techniques, and tools of analysis needed to obtain an acceptable solution. The resulting data must also be a part of the consideration when generalizations of research are made (Chapters 8, 9, 10, and 11).

CHAPTER 10

Research Techniques—Collection of Data

After the method or pattern for the solution of a problem has been determined (Chapter 9), it is necessary either to select or construct the techniques (sometimes called instruments) needed to gain valid data to serve as the basis for the solution of the problem. As was noted in the instance of method, the solution of problems requires specific instruments; that is, instruments must meet the requirements of the problem. For example, using the questionnaire to gather data on a physiological problem will not yield a valid solution; experimental instruments are needed. In most educational problems, several instruments are necessary in order to yield data on the component parts of the whole problem that need to be solved. Problems dealing with a survey of current educational practices, for example, may require the questionnaire or the interview techniques.

A guide for the selection of techniques or instruments is presented in Chapter 9. This classification is developed according to the types of data needed in order to solve educational problems. Techniques are constructed to meet the requirements of the types of data needed. It was practices, educational values, educational influences, individual status, individual educabilities, individual capacities, educational records, job functions, and individual traits, characteristics, and attitudes. Eleven techniques are now available for use according to these problem requirements. It is noted (Figure 17) that the problems pertaining to the nine classified functions of health, physical, and recreation education utilize all methods of research. The methods make use of all techniques, except the historical method, which employs questionnaire, interview, observational, appraisal, documentary analysis, and photographic techniques. The selection, however, must be made according to the guide presented in Chapter 9. The applicability of the technique should also be determined before final acceptance. The principles herein presented are applied in this connection.

Principles are presented that should be followed when an instrument

is to be selected or constructed. The adequacy of the problem solution is determined by the extent the selected or constructed instrument meets the conditions of these principles. Instruments must be properly selected to fit the data requirements for the solution of the problem.

PRINCIPLES FOR THE SELECTION OR CONSTRUCTION OF TECHNIQUES

In most instances techniques or instruments need to be constructed to meet the requirements of the research problem. This is necessary since there are hardly any two problems alike. The most important, and in some ways the most difficult, part in planning research is the construction of techniques. The quality of construction is in direct proportion to the quality of data collected. Adequacy of the problem solution is also governed by the quality of instrument construction. If the instruments are inadequate, the errors in research are probably as large as would result from a guess about the solution of the problem. It is hardly wise to set educational activities into operation, as the result of research, if the research does not meet fully the principles directing research planning on techniques.

The requirements for the construction of techniques or instruments are presented in ten principles. These principles should be applied to all techniques and each technique must meet successfully the conditions of the principle in order to be used. Each principle will be sufficiently described so that its nature may be established and understood. Reference to the specific nature of each technique should be made (see pages 234-261) for more details on guides for construction.

PRINCIPLE 1: The instruments or techniques cannot be selected or constructed until the objectives of the research have been established.

The first step in conducting research is the identification and definition of the problem; the accomplishment of this step will establish the direction. When the direction has been established, the principle on objectives is also satisfied. For example, in conducting research on the preparation of a professional education program it is desirable to collect data on current and national trends. This becomes one of the objectives of the research, and techniques must be constructed so that data gathered will reflect national trends in professional education. This principle applies to all research and is the starting basis for the construction or selection of all instruments or techniques.

PRINCIPLE 2: A framework for the scope of the research must be established in order that instruments are selected or constructed to include provisions for the collection of all data needed for the solution of the problem.

Before instruments may be selected or constructed the scope of the re-

search must be established. A framework needs to be developed that will include all details on needed information so that technique construction may include provisions for gaining this information. After objectives have been established, the framework for each objective must be constructed.

Using the example cited in Principle 1 (trends), it is necessary to determine: (1) whether trends pertain to health, physical, or recreation education; (2) whether the trends pertain to interpretations, objectives, social auspices, evaluation, program, leadership, administration, history, or professions; and (3) what aspects of (2) are to be included, if selected. In leadership, for example, does the study deal with advisory, administrative, supervisory, instructive, group leader, and/or technician leadership? Furthermore, if administrative leadership is to be included, for example, does it include all agencies? In addition to the framework defining the elements of the research, the framework is further established by statements delimiting the problem. In this example, the research may be delimited to include only the public schools, secondary level, and male population. With this information, selection and construction of techniques may be made with confidence that the information will include all phases of the problem needed for an adequate solution.

PRINCIPLE 3: Provisions must be made, when selecting or constructing a technique or instrument, for the determination of validity.

It must be determined whether or not the instrument selected or constructed yields valid information. This determination should be made according to the established framework (Principle 2) and in terms of the objectives of the research (Principle 1). Unless the instruments yield information directed by the objectives, the instrument cannot be considered valid. *A valid instrument is one that yields sufficient quality and quantity of information to meet the requirements (objectives) of the research.* For example, a questionnaire devised to determine current practices of selection of students for professional education must, when applied, yield all data on this objective.

The validation of techniques may be either *curricular* or *statistical*. *Curricular validation is determined by establishing the technique on the basis of content.* A questionnaire, for example, has curricular validity if it includes provisions to gain all the information needed to solve the problem. Using the example on current practices, a questionnaire is valid if it gains data representing all aspects of current practice. An instrument that provides full information on the problem (according to of the existing problem, has perfect validity on the curricular basis. All techniques or instruments must be established according to the criterion of curricular validity.

Statistical validity for an instrument is demonstrated when the instrument correlates perfectly with a criterion measure representing the

desired information. When tests are used as techniques, statistical validation is required. For example, if a test is constructed to measure general motor ability, the extent of validity is determined by correlating the test with a criterion measure of general motor ability; criteria that have been used are groups of demonstrated motor ability (athletic and non-athletic groups), and composite scores of rated performances. However, since it is difficult to establish a criterion measure for all techniques, it is not always possible to gain statistical validity. If a criterion measure can be established, statistical validity should be determined along with curricular validity. In this connection, curricular validity establishes the content of the technique and statistical validity establishes the instrument on the basis of an external measure (criterion).

Criteria that may be used for validation purposes of the eleven techniques, that is, for the purpose of correlation to determine statistical validity, are: other techniques that have been found valid on application (questionnaires, interviews, tests, etc.), varying ability groups (high, medium and low abilities—used in test validation and other techniques also if the purpose is to measure varying degrees of validity), and a theoretically constructed criterion that has been established on the curricular basis.

PRINCIPLE 4: Provisions must be made, when selecting or constructing a technique or instrument, for the determination of reliability, and reliability must reach a satisfactory level before the instrument is applied.

The reliability of an instrument or technique must be satisfactory before it may be applied in research. *Reliability is evident if information gained about the same phenomenon by the same examiner is consistent.* A perfectly reliable technique will always yield the same information on successive applications of the technique, if the conditions of the phenomenon have not changed. An unreliable instrument cannot yield valid information. Acceptable reliability for data used in group description should not be lower than a .70 correlation. Reliability for individual use should not be reduced beyond .85. Because reliability improves with addition of data, it is possible to accept a lower reliability for group descriptive purposes. Reliability is significantly increased by inclusion of additional data; but additional data will not have the same influence for individual applications, as scores are always individually considered.

In all instances reliability of techniques may be improved by the lengthening process: if an instrument is applied several times, with the average score used, the reliability will be improved. The improvement is due to the neutralization of chance errors that cause unreliability. In order to improve the reliability of techniques, the resulting scores are averaged (when chance errors will cause a larger or smaller score—e.g., throw for accuracy), the largest score is selected (when chance errors always reduce the score—e.g., measurement of muscular strength), or the smallest score

is selected (when chance errors always increase the score—e.g., time in running). The lengthening process should continue until the .85 correlation standard is reached.

PRINCIPLE 5: *Provisions must be made, when selecting or constructing a technique or instrument, for the determination of objectivity, and objectivity must reach a satisfactory level before the instrument may be applied.*

Objectivity differs from reliability only with respect to the examiner; objectivity is the measure of the consistency of results when the technique or instrument is applied, by different examiners, to the same group and under the same conditions of research. A perfectly objective instrument will yield the same results. Different interpretations by the examiner will cause low objectivity.

All conditions of reliability (Principle 4) apply to objectivity, including the standards as well as the processes of lengthening for the improvement of low objectivity. In both instances the conditions surrounding the application of the techniques will determine the amount of inconsistency. Some factors resulting in poor reliability and objectivity are: attitude of subject, misunderstanding of directions by subject, unfavorable room or research surroundings, and inadequate directions for the application of the technique. All conditions that influence results, except the phenomenon being measured, should be eliminated for good reliability and objectivity. Reliability and objectivity determinations apply to all techniques.

PRINCIPLE 6: *The selected or constructed technique or instrument should equal the level of ability of both the examiner and the subject.*

The difficulty level of the technique should be equal to the ability of both examiner and subject. An instrument for which skill in application is not acquired by the examiner cannot result in valid data, nor will an instrument too difficult for subjects yield valid data. A questionnaire designed to gain information from elementary school children must be written on the elementary vocabulary level. This principle applies to all techniques and must be tested before application is made in research.

PRINCIPLE 7: *A technique or instrument should not be used unless a manual of instructions is available that presents all details of application.*

No detail should be overlooked in applying instruments for the collection of data. Instructions should include a description of the instrument, procedures on application, procedures on scoring, and a list of extraneous influences that will invalidate results. A questionnaire, for example, should include instructions for the respondent on the nature and purpose of the questionnaire and the scope of the responses expected. The questionnaire should not be put in final form until scoring procedures have been considered and tested, and a trial run made to determine whether the questionnaire applies to the group for which it is intended.

If the instrument is a test, in addition to the details cited on the ques-

tionnaire, information should be presented in the manual on the reliability, objectivity, and validity of the test. Norms should be presented, and specific steps on how the test is administered are of special importance.

Techniques, whether selected or constructed, should be evaluated from data presented in the manual of instructions according to the following check list of items that will determine the effectiveness of the instrument: purpose, description of application, reliability, objectivity, validity, norms, scoring, and suggestions on how to avoid errors on interpretation for both the respondent and the investigator.

PRINCIPLE 8: Procedures for scoring the technique or instrument should be determined and tested, by a trial run, before application in research.

Techniques or instruments are used to collect data; all techniques or instruments must have a form of scoring the phenomenon being investigated in order that its nature may be described if quantitative (amount) data are desired. Qualitative analysis deals with the constituent parts of a problem. Usually in such analysis an instrument scored to yield amount of the constituent is not necessary.

Instruments may be scored according to dichotomous classifications (pass-fail, true-false, yes-no, married-single, white-colored, etc.), categorical classifications (ratings—A, B, C, D, and E, etc.), and continuous data (age in months, weight in pounds, etc.). When a scoring device is proposed it is usually desirable to plan for continuous data, if this is possible. For example, when body weight is to be measured, it is preferable that this information be obtained in pounds, rather than in two categories (above and below a mean weight) or in categorical classifications (A, B, C, etc., defined in weight standards).

Whether the scoring device is valid must be determined by a trial run. If an instrument upon application results in a distorted distribution, and the sample is known to be normal, the scoring system needs to be revised to yield a valid measure of the phenomenon.

PRINCIPLE 9: Techniques or instruments should be applied only when they meet the requirements of a valid solution to the problem.

Techniques or instruments are designed according to the specific requirements of a problem so that collected data will yield a solution to the problem. Because problems are seldom alike, techniques usually need to be constructed according to the requirements of the problem. This is particularly true for the questionnaire, interview, observational, appraisal, job analysis, and case study techniques. In some problems, available tests may be applied as well as the experimental instruments, such as the sociograms and photographic techniques. In all instances the results should be examined to determine whether they appear reasonable. Consistency of findings does not guarantee valid results, unless it is demonstrated that the instrument is a true measure of the phenomenon. This is determined by the selection or construction of an instru-

ment that fits the description of the phenomenon to be measured. If it is desired to measure arm strength in relation to body weight, for example, chinning and dipping tests may be used. Whether these measures yield valid results about arm strength is determined by an anatomical analysis of these two tests to determine the muscle groups involved. When measuring I.Q. an instrument must be selected according to age and the definition of the intelligence to be measured. The validity of instruments in application, therefore, becomes a matter of content analysis of both the technique and the phenomenon.

PRINCIPLE 10: *The results of the application of techniques or instruments should be analyzed by use of qualitative or quantitative tools.*

To insure the proper solution of a problem, it is necessary to analyze the results using qualitative or quantitative tools that fit the data collected and that will yield evidence that establishes the nature of the solved problem. In instances when numerical data result, it is necessary to use statistical tools; the scope of the statistical tools will be determined by "how much" analysis is needed to gain a solution to the problem. For example, if a relationship needs to be determined between muscular strength ability and motor ability, the correlational statistic should be applied. Data resulting from research in most instances have specific requirements, and selected tools are made accordingly. Philosophical data require qualitative analysis so that the components and relationships of the problem are established. The nature of the analysis of data must be determined when the instrument is selected or constructed. (See Chapter 11 for more details on analysis of data.)

THE TECHNIQUES AND APPLICATION OF PRINCIPLES

The Questionnaire

The questionnaire is a standardized form used to gain information about educational practices, conditions, and effectiveness. Information gained may be facts or they may be judgments. Facts are usually in the form of frequencies—number of pupils, amount of facilities, time, space, and so on. Opinion or judgment data are statements about difficulties of work, description of program elements, characteristics of children, etc. The questionnaire may be in the form of a check list, ranking, rating, weighting, yes-no responses, or statements of description.¹

Selection or Construction Criteria

The questionnaire must be properly selected or constructed to fit the data needs for the solution of a problem. The considerations essential

¹ See the Appendix for illustration of the various types of questionnaires, pp. 323-325.

on application of the questionnaire are those which result when the general principles on the selection or construction of techniques are applied.

1. *Objectives.* The objectives of the research must be established before a questionnaire may be selected or constructed. The objective may be to determine the current practices of programs of health education in the senior high schools of a state; starting plans may begin with this statement of purpose.

2. *Framework.* A framework including all essential elements needed for the solution of the problem must be prepared before a questionnaire may be selected or constructed. For example, in a senior high school program of health education, all phases of health education to be considered must be included—such as, program activities, facilities, and leadership. Questionnaire items must therefore be provided to gain information about each component.

3. *Validity.* Unless a questionnaire yields valid data, it should not be applied. The validity of a questionnaire is determined by the method of curricular validation (content). By this method, if the questionnaire yields information on all aspects of the problem, and if the data present the situation that exists, the questionnaire is said to be valid. In the cited example, a valid questionnaire should present the current practices of health education exactly as they exist in the senior high schools.

4. *Reliability.* The questionnaire must have satisfactory reliability or it cannot be used; a questionnaire is said to be reliable if on the successive applications the same results are found. Unreliability results when the questions are misinterpreted or extraneous considerations are allowed to operate. The reliability of a questionnaire may be determined by successive applications (compare results), or by parallel forms of questionnaires. If a questionnaire is found to be unreliable (below .70 for group use and below .85 for individual use), more questions should be added and a review should be made of each question to identify the reason for inconsistency in replying (see criteria for evaluation of the questionnaire, page 236).

5. *Objectivity.* The considerations of objectivity are the same as those for reliability, and differ only with respect to examiners. In this instance when the same technique is administered to the same group by different examiners, the results are identical if objectivity is perfect. Objectivity is improved by carefully standardizing the directions and conditions for the administration of the questionnaire. Reliability is a major concern in the use of questionnaires; objectivity is of secondary consideration since personal interpretations are reduced to insignificance if the questionnaire is highly reliable.

6. *Level of ability.* The questionnaire must be prepared so that it reflects the level of ability of both the respondent and the investigator.

In order to determine whether or not each question is possible of response, it is necessary to have a trial run of the questionnaire; the sample should come from the same population as the application to be made. A questionnaire concerning various aspects of a health education program must be completed by one with knowledge of health education.

7. *Manual of instructions.* A manual of instructions should be prepared for each questionnaire. Instructions should give the details on the purpose of the questionnaire and suggestions on responding. Detailed instructions aid in securing valid results.

8. *Scoring.* The scoring scheme for each question should be determined and tested before the questionnaire is used; responses to questions may be in the form of yes-no, checking, rating, etc., as previously presented. The scoring scheme should yield a description of results that will represent the nature of the phenomenon. Information on facilities, for example, may be gained by use of a check list on kind and number.

9. *Application.* The questionnaire should be used in research only when valid results are gained by this technique. Where information on current practices in health education is desired, the questionnaire may be used (if the respondent is familiar with all aspects of current practice). In each instance a review of the various techniques must be made in order to determine which will yield the most valid results. In many instances the interview is preferred to the questionnaire.

10. *Analysis of results.* The results of the questionnaire must be analyzed according to data requirements of the problem. A trial run is necessary to determine whether the results may be analyzed to yield data which present the solution to the problem. If all answers are "yes" and if the solution presents a range of responses within the "yes" answer, the question must be revised to further define the "yes" reply.

Evaluative Criteria

Item analysis criteria for evaluating questionnaires. In addition to consideration of the selection or construction of the questionnaire it is also advisable to test each question by the use of the following evaluative criteria:²

1. Have the items been examined for clarity?
2. Is the question possible to answer?
3. What am I going to do with the answer?
4. Can the information be obtained from another bureau?
5. Is there any doubt that the answer will be given truthfully and accurately?
6. Is the method of scoring adequate?
7. Is there consistency in the set-up of the questionnaire?

² Louis E. Rath, *unpublished paper*, New York University.

8. Is everything from the outline that is necessary included in the questionnaire?

9. Is the checking of answers overloaded toward one end of the scale, e.g., (1) very adequate, (2) adequate, (3) inadequate?

Administrative criteria for evaluating questionnaires. Certain administrative considerations are also essential when preparing a questionnaire. These are:

1. Is the questionnaire adequately sponsored? Should the questionnaire be sponsored?

2. Is the purpose of the questionnaire stated?

3. Is the problem a worthy educational topic?

4. Is the questionnaire well organized?

5. Are the requests reasonable, e.g., time, length, etc.?

6. Is the questionnaire used as the last available technique? (Information may be gained from school records, catalogs, reports, etc.)

7. Is the selection of a sample made on a comparable basis?

8. Are the questionnaire returns examined for representativeness?

9. Is the cost of printing, distribution, etc., predetermined?

10. Is the time necessary for tabulation and analysis of results estimated?

11. Is the research population established prior to the preparation of the questionnaire?

12. Is a separate letter of transmittal prepared for each questionnaire?

13. Are two copies of the questionnaire prepared for sending—one to return, and one for the files? Is a self-addressed, stamped envelope included?

The Interview

The interview is a face-to-face technique used to collect data on problems that cannot be solved by the questionnaire. The interview and the questionnaire have all procedures in common except application. The interview deals with the collection of data usually not gained by the questionnaire. Data on personal experiences, educational philosophy, family life, confidential information, complex problems, and so on, are examples of problems requiring the interview. Other than this difference in application, problems that are solved by the interview are also those dealing with educational practices, conditions, and effectiveness. The interview is used in all methods of research; it has its most common application, however, in the survey method.³

Selection or Construction Criteria

Planning for an interview calls for the same careful preparation as planning for the questionnaire; some differences, however, exist. These

³ See the Appendix for illustration of the interview form, pp. 325, 326.

differences are identified on application of the general principles for the selection or construction of research techniques.

1. *Objectives.* The objectives of the research must first be established before planning the interview can begin. If the purpose is to study current practices, for example, plans may include the interview.

2. *Framework.* A framework consisting of all elements of the problem must be established before the various phases of the interview may be formulated. In this connection, the considerations are similar to the questionnaire.

3. *Validity.* The validity of the interview must be determined prior to its application by demonstration that the content of the interview represents the situation being studied. It must be first demonstrated that all information required for the solution of the problem, as indicated by the framework, is gained by the interview. This process is one of studying content of the interview in relation to the data needs of the problem. Validation therefore includes content (theoretical validation) and application (observational validation).

4. *Reliability.* The interview must have satisfactory reliability or this technique cannot be applied. If the results are inconsistent, if the interview is repeated (without a change in the problem or conditions), it is necessary to reformulate the questions so that, whatever the judgment of the respondent, the replies represent a consistent opinion even though this opinion is not stabilized (if the respondent is uncertain, this uncertainty is indicated in the interview). Procedures for improvement of reliability are similar to those of the questionnaire.

5. *Objectivity.* The interview must also have objectivity in order to yield valid results. The interview should be planned in such detail that the results do not vary with different interviewers. Personal influences and interpretations of the interviewer must be eliminated; this consideration is particularly important in surveys when a number of interviewers are used to gain information on one problem (e.g., current practices in recreation). Testing, using the same population with different interviewers, may be applied to determine the objectivity of the interview. Items of the interview that have low objectivity must be improved (usually by further definition), eliminated, or additional items added.

6. *Level of ability.* The interview must be prepared to meet the ability level of the respondent in both content and terminology. A trial run, using the same population, is necessary to determine the applicability of the technique. The interviewer must also be capable of conducting an interview.

7. *Manual of instructions.* The planned interview must include instructions in such detail that when the instrument is applied misinterpretations will not result.

8. *Scoring.* How records are to be made and scored must be deter-

mined prior to the interview and must be tested by trial run. Recording or scoring may follow the same plan as the questionnaire, or a code may be applied. In all respects the procedure must be simple. The interviewer should be free to probe, not serve as a recorder. In this connection *recording machines* are highly desirable.

9. *Application.* The interview should, of course, be used only when valid data result. The problems are those dealing largely with judgments (facts if they are available) concerning educational practices, conditions, and effectiveness. When judgments need to be discussed in order to gain valid information, the interview should be applied.

10. *Analysis of results.* The nature of the data resulting from an interview must be considered before this technique is applied. The results must permit analysis in terms of the problem requirements for solution. In this connection the requirements are the same as the questionnaire.

Evaluative Criteria

In addition to considerations on the selection or construction of an interview technique, it is advisable to apply the following evaluative criteria concerning the application of the interview technique:

1. Data which may be gathered by use of the interview technique have the following limitations relating to the respondent: (1) experience, (2) judgment, (3) accessibility and willingness to divulge information, and (4) ability to express himself clearly.
2. The interviewer must not transfer to the respondent his own ideas as suggestive responses.
3. Interviewing is an art and requires long preparation and experience. Practice is necessary in order to gain valid information.
4. Some information can be secured by direct questions, some by indirect questions.
5. The interviewer must sample thoroughly the knowledge and attitudes of the person interviewed. This must be skillfully accomplished.
6. Some of the important aspects of interviewing are: preview, initial contact, conditions of the interview, securing rapport, reduction of tensions, questioning, and preparation of records.
7. Cooperation is essential for a successful interview.
8. In many instances it is necessary to combine the questionnaire and the interview in order to get complete information on a problem.
9. The time sequence of the interview must be carefully planned.
10. Fatigue reduces reliability of the response; one to two hours is about the range of time of the interview. Reliability must be determined.
11. The interviewer must be honest, straightforward, and genuine. He must have a thorough preparation in the field of study.
12. The place of the interview should be private, attractive, and comfortable. Confidence must be assured.

13. The interviewer must learn, not argue.

14. The results of the interview must be capable of analysis—either statistically or speculatively.

15. Sampling criteria must be met and accomplished by the results of the interview. The research population must be determined prior to the interview.

The Experiment

The experimental pattern or method consists of the one-group, equivalent groups, and the rotational groups (Chapter 9). These patterns are applied in connection with experimental investigations, although the patterns may also be applied in the other methods of research (Figure 17). These three patterns must, in addition, use instruments or techniques in the process of collecting data about a problem. The one-group, for example, represents the fundamental starting point; tests, observations, etc., must be administered to this group. When the experimental method is applied, instruments are needed for the measurement of time, force, weight, pictures of the body, circulation, respiration, body reactions, blood and other body fluids, X-ray, standardization of work (treadmill), and so forth. This is also true when the other two patterns of research are applied. When considering the data collecting phase of research, both the pattern of research to be used and the instruments or techniques needed must be included in the planning. Both will be included in the following presentation.⁴

The one-group pattern is used when one or more variables are applied to the same group of subjects with the changes in each noted. This pattern is valid when the changes produced by the variable or variables are not "carried-over" when additional variables are applied to the same group. The equivalent group method is used, rather than the one-group, when a "carry-over" is found from preceding variables. In this method two variables, which are to be compared, are applied to two equivalent groups. This method is valid only when the two groups can be equated in all related variables except the experimental variable. Comparing two methods of teaching is an example. The two groups must be equated by IQ, education, etc., in order that the two methods may be investigated without having extraneous influences reflected in the results. The rotation group pattern is a combination of the other two. The application of the variable is rotated between and among groups and is valid when changes produced by the variable are not a "carry-over" from the preceding variable, or the influences are neutralized in the process of rotation.

The selection of data collecting instruments in experimental research includes problems pertaining to reliability, validity, and examining ability. These are discussed in the following section.

⁴See the Appendix for illustration of the experimental instrument, p. 326.

Selection or Construction Criteria

The group patterns must be selected to fit the problem requirements for a valid solution of a problem. The essential considerations for the selection of the proper pattern and techniques or instruments to be used in connection with each pattern follow an application of selection or construction.

1. *Objectives.* As in the instance of other techniques, the objectives of research must be established before selection may be made. If the research objective is to determine the effectiveness of two methods of health teaching, for example, then the group technique is selected that will yield the most valid result. Data collecting instruments must also be selected. In the above example, the test instrument would be needed.

2. *Framework.* The framework of the problem, of course, needs to be constructed before a selection is made of group method or instruments. In the cited example, the various aspects of teaching for health must be determined. These considerations must conclude whether the problem is to include social, mental, emotional, and/or physical health, and if the problem is to include all phases, the elements constituting each component must be established. The extraneous influences, in teaching for health, must also be established. Some of these influences are IQ, socio-economic status, and home environment.

3. *Validity.* The group technique and instruments applied must yield valid results. If extraneous influences are found, if the results are contaminated by "carry-over" from variable to variable, the research findings are of little value. In the cited example, it would seem advisable to use the two equivalent group technique with an equation of the groups according to IQ, educational experience and background, home environment, and other factors such as teaching practices. The two methods of teaching may then be applied, one to each group, and may be directly compared. The one-group and rotational group could not serve in the same valid manner because of the carry-over effects. The instruments must also show evidence for their validity before they may be used. Reference should be made to the appropriate section on techniques, in this chapter, for further discussion on validity as it pertains to each instrument (tests, observation, interview, etc.). The validity of laboratory instruments is determined by comparing results on application with a criterion of known validity. The validity of an instrument to measure ability in the high jump, for example, may be compared with the high jump record. An instrument for the measurement of health attitudes must demonstrate that the test is a full measure of attitudes that one may have about health (content validity).

4. *Reliability.* Reliability considerations must be made according to the group pattern and according to the instruments to be used in con-

nection with the investigation. In the cited example, the administration of a test for the measurement of the outcomes of teaching must be reliable for both groups. This may not always be true; one test may measure more reliably certain outcomes, and if outcomes vary with each method, differences may be found due to unreliability. The one-group method is inherently more reliable as it contains the same individuals. Errors causing unreliability, due to individual differences, therefore may be more numerous in the equivalent groups. Reference should be made to the appropriate sections in this chapter for presentation on the reliability of the various instruments. The reliability of the laboratory instruments is determined by the repetition method using the same subjects; identical results indicate perfect reliability. Reliability determinations must be made for the investigator, the instruments, and the materials.

5. *Objectivity.* Considerations of objectivity are similar to those of reliability; however, in the instance of objectivity another source of error is possible: changing examiners. This source of error may be avoided by carefully standardizing procedures on application of research patterns and instruments. The skill necessary for application of laboratory instruments must be established, before experimentation begins, and all investigators must meet an established standard of skill requirements.

6. *Level of ability.* This consideration applies both to the examiner and subject; the examiner must have the skill to apply the instrument and the subject must have the skill to respond so that a valid result is gained. When measuring motor ability, for example, the examiner must be skilled in the administration of the tests, and the subjects must have the skill needed to perform so that the results represent a true measure of ability. The trial run should be made on a sample from the population of the research problem.

7. *Manual of instructions.* A manual of instructions should be prepared on the details of the application of the group technique and instruments which are to be used. In the cited example on health teaching, the selection of individuals to constitute each of the two groups must be indicated in the instructions so that the two groups are identical within the range of significance. All details on the administration of experimental instruments must also be included in the instructions.

8. *Scoring.* This applies to the instruments used in connection with the group method. When laboratory instruments are used, it is necessary to calibrate the instrument so that accurate data result. In all instances the scoring range must be comparable to the range of ability or characteristics to be measured.

9. *Application.* The selection of the group pattern and instruments must be made according to the problem requirements. All group patterns are not equally valid for a particular problem; in the cited example on

health teaching, the equivalent group technique is preferred due to the "carry-over" that will result if the other two group patterns are used. The instruments must also fit the problem. A test devised using elementary school subjects would not normally be applicable to the senior high school. The fit of the pattern and instruments to a population must be determined prior to the investigation.

10. *Analysis of results.* The nature of the results desired must be planned before selection of instruments is made. If "yes-no" data do not yield an adequate solution, then another instrument must be selected or constructed. Consideration in this instance lies with the instruments to be used in connection with the selected group pattern.

Evaluative Criteria

In addition to the considerations of the selection or construction of experimental techniques, it is also desirable to review the evaluative criteria on the experimental method (see Chapter 9). Some additional criteria which need to be considered in experimental research are:

1. Experimental pattern and experimental instruments are used when the problem concerns the influence of two or more variables, and the magnitude of the influence is desired.

2. The experimental pattern selected (one group, equivalent group, or rotational group) must be made according to the variables (influences) of the research problem. Data gathering techniques must be selected to fit the group pattern. If a test, for example, is to be repeated, a "carry-over" from the first application cannot be allowed.

3. The mastery of experimental techniques must be accomplished prior to application. The errors on application are systematic and chance; the magnitude of both must be determined and removed. The systematic errors may be eliminated by calibration of instruments, the chance errors by increasing the number of measurements (see Principle 4, page 231).

The Observation

The observational technique is a planned procedure on the collection of data through observing, noting, and recording certain phenomena within the framework of a defined problem. For example, studies dealing with the actions and reactions of children on a playground apply the observational technique. In order that valid data may be gained it is necessary for the observer to be thoroughly familiar with the problem and the specific phenomenon being studied. Normally the observational technique utilizes a check list of items which includes a complete list of the elements of the phenomenon so that as each occurs, a note may be made; the check list also sensitizes the researcher to the elements of

the problem. Observation on a problem should continue until no new information is gained. The nature and scope of the phenomenon are therefore established.

The observational technique may be applied to collect data within the framework of all methods of research (Figure 17, Chapter 9). The usefulness in each method will vary and in some instances other techniques are more valid. The problems that utilize the observational technique, in part, are problems on administrative practices, program activities, leadership and community organizations.⁵

Selection or Construction Criteria

The success of research using observation starts, fundamentally, with the preparation of the observation technique and training of the observer. The general principles of selection or construction of techniques should be considered in this connection.

1. *Objectives.* As in the other instances, research starts with objectives or purposes. When they have been established, it will be determined whether or not observation may be used as a valid basis to gather data, and it will establish, if the technique is acceptable, the direction for the construction of the instrument. For example, research designed to study current practices of recreation in a community may use the observation technique, and with this statement of purpose plans for the construction of a check list may be made.

2. *Framework.* A framework containing all elements necessary for the solution of the problem needs to be established before the observational technique may be developed. In the cited example of a study of current practices of recreation in a community, it would be necessary to establish what aspects of recreation are to be observed (activities, facilities, time, etc.) and also to establish subdivisions of the constituent part of each component (e.g., activities—a list of all possible activities, etc.).

3. *Validity.* The validity of an observational technique is determined by whether or not content is inclusive of all elements and, when observation is used, whether records are made that represent the situation exactly as it is. In the cited example, a valid observational technique includes all elements of a community recreation program, so that when it is used to determine current practices in a community, the results represent the recreation program as it exists. The instrument itself is only part of the validation consideration; the observer must be qualified in order that all practices can be observed and recorded. Recording instruments will help improve the validity of results through more accurate records.

4. *Reliability.* Reliability is one of the major considerations when

⁵ See the Appendix for illustration of observational forms, p. 326.

constructing an observational instrument. All information must be provided in the technique in desired quality and quantity. Such provisions will insure high reliability, if the observer is competent. It is advisable in all instances to determine the reliability of the instrument; this may be accomplished by repeating observations over a period of time. For example, an observation may be made of the facilities for recreation available in a community. The observational instrument may be used two or more times to record existing facilities; if the results are identical on each successive application, the results are reliable. The observer is therefore consistent in observing the facilities and the check list instrument is also considered reliable. The results, however, may not be valid, if certain facility items are not included and are therefore not observed.

5. *Objectivity.* It is advisable to have two or more observers of the same phenomenon. If the results on observation are identical, the instrument and the application by the observer have complete objectivity. If objectivity is low, the instrument and the qualifications of the observer should be examined. If found satisfactory, it is permissible to make several observations and use the total composite observation as the record. Such procedure is also advisable to improve reliability. Reference should be made to the section on general principles for more details (Principles 4 and 5, pages 231, 232).

6. *Level of ability.* In this instance, ability levels refer to the observer; an observer unfamiliar with the phenomenon being observed cannot qualify for such research. The technique should also be prepared so that it is not too complex and that all conditions are possible of observation. If the problem consists of determining all movements of a basketball player during a game, an observational instrument would be difficult to administer. It would be necessary to use several observers and divide the task into simple parts. One recorder may record shots attempted with success or failure with a record also of the place on the floor for each shot (the floor divided into parts so that record may be easily made). Others may record the place where fouls are committed, etc. The use of recording machines and motion pictures will also help.

7. *Manual of instructions.* A manual of instructions is needed for a description of procedures of application of the observational technique. All details on "how to observe," "what records to make," "how to make records," and the like, must be included in the manual. Directions for each item are needed to avoid the errors that are easily made when observing.

8. *Scoring.* Records may be made of observations by use of a check list prepared so that the record is easily accomplished. Making the record should not interfere with observations. If the observation is complex it may be necessary to use motion pictures (in football, for example)

and then make observations on "slow motion" review. Other methods of record making may use shorthand, recording machines, and stenotyping.

9. *Application.* The observation technique should be used only where phenomena can be observed with a valid result. It is necessary to apply the instrument on a trial run, if a question exists about its applicability. In general, this technique should be used only when measuring phenomena that can be easily seen; however, in some instances phenomena are too complex to be observed unless recording instruments or motion pictures are used and analysis made on slow speed run.

10. *Analysis of results.* How the results are to be analyzed must be determined before the instrument is applied to the research population. It is then possible to determine whether or not the analysis will fit the problem requirements for solution. "Yes-no" data on problems requiring greater refinement will be found inadequate. In studying the IQ in a school, for example, data represented by "above-below" the average is of little value. Recording a child's action, for example, as "good or bad," is also of little significance.

Evaluative Criteria

When making application of the observation technique it is also desirable, in addition to considerations of selection or construction, to apply the following evaluative criteria to determine the effectiveness of the instrument.

1. In order that the observational technique may be properly used, it is necessary that the observer be thoroughly familiar with the field and the specific phenomenon being studied.

2. The observational technique must start with a list of items constituting the basis for observation.

3. Frequency alone may not yield the evidence needed for the description or analysis of the phenomenon; it is sometimes desirable to weigh the importance and difficulty of each item.

4. It is unwise, in many instances, to describe a phenomenon on the basis of one observation; the length and frequency necessary will be determined by its nature.

5. Factors related to the observation must be considered: time of day, temperature, weather, etc.

6. The observational technique is often used to supplement information gained by the questionnaire.

7. The depth and breadth of observation must also be determined prior to application of the technique.

8. The observational technique may be used in the framework of any research method (historical, experimental, etc.).

9. Observation, in many instances, must be made without knowledge of the presence of the observer.

The Appraisal

The appraisal technique is used to collect data to solve problems dealing with values. For example, the worth of a certain program of recreation may be determined by appraisal. The techniques of appraisal are usually judgments objectified and applied either directly or indirectly. Direct judgments are those judgments applied directly to the problem, and the data are used for the problem solution. Indirect judgments are those applied to the construction of the basis for judgment used for the solution of the problem. An example of direct appraisal is judging diving; this is appraisal based on a standard. Judging the validity of a set of program principles, which may be applied to an educational program, is an example of indirect appraisal. The most common technique of appraisal is the jury. The jury provides group judgments that may be used for appraisal, either directly or indirectly. Other instruments of appraisal are check lists, ranking, grading, rating scales, score cards, and systems of weighting.⁶

Selection or Construction Criteria

Considerations of the selection or construction of instruments of appraisal result from application of the general principles to this technique.

1. *Objectives.* Considerations are the same as in the instances of other techniques. The purpose of the research, or the goals, must first be stated before selection or construction of appraisal instruments may begin. The technique that may be applied is thereby determined. A study dealing with the worth of extracurricular activities will use an appraisal instrument.

2. *Framework.* The constituent parts of the problem must be established before instrument selection or construction may begin; the considerations are similar to those previously presented. For example, in the cited problem, the scope and elements of the extracurricular program must be established before an appraisal instrument is constructed or selected.

3. *Validity.* The instruments of appraisal (principles, standards, jury, check lists, ranking, grading, rating scales, score cards, and systems of weighting) are usually validated by *content analysis* and *statistics*. If it can be demonstrated that the technique includes all aspects of the problem to be appraised, and that the scoring procedures yield the range and differentiation (statistical validation) representing the nature of the

⁶ See the Appendix for illustration of appraisal instruments, pp. 329, 330.

problem, the technique is considered valid. Validation not only includes the construction of the instrument, but also its application; a valid instrument in the hands of an inexperienced or uninformed individual cannot yield valid data. In the cited example, principles may be constructed and validated by content analysis, and then applied for the determination of the worth of the extracurricular program.

4. *Reliability*. The reliability of an appraisal instrument is determined by application and re-application to the same individuals. An instrument, for example, used by a juror to note the physical development of one individual is perfectly reliable if the results are the same on successive ratings of the same individual. To test the amount of reliability of an instrument, it is re-applied to a group when knowledge of the first rating is unknown. The standards of acceptable reliability are the same as the questionnaire and other instruments or techniques (Principle 4, pages 231, 232). In the cited example, when the principles are applied the results should be similar on successive applications.

5. *Objectivity*. The objectivity of appraisal instruments is determined by application of an instrument to the same group by different examiners or judges. An instrument has perfect objectivity, for example, if the results of the ratings of two judges on diving performance are alike. Objectivity is of major significance when an instrument is administered by several individuals. It is also desirable as a basis of checking the use of an instrument by someone of uncertain ability by making a comparison with some expert on application of the instrument. Objectivity is improved by lengthening the scale (more depth of information), or improving the structure of the instrument by further refinement (both in content and statistics). In the cited example, the principles may be too general and therefore varied interpretations may result.

6. *Level of ability*. This criterion applies only to the appraiser. Knowledge of the phenomenon to be appraised and the instrument to be used is essential. Training and trial runs (results compared with experts' opinions) are necessary.

7. *Manual of instructions*. Considerations are the same as in other techniques. Details on the technique and how it is to be administered must be contained in the manual. In the cited example, how the principles are to be applied to judge the extracurricular program must be stated.

8. *Scoring*. How the record is to be made by the appraiser must be determined prior to application and tested by trial run. Scoring must yield a result which is descriptive of the nature and variability of the phenomenon. In the cited example, proper differentiations of the programs must be made by scoring schemes used.

9. *Application*. Appraisal techniques, as in the case of other techniques, can only be used when the instrument fits the population group

and problem to be investigated. An instrument constructed to appraise the physical development of elementary school children cannot be used to appraise senior high school students.

10. *Analysis of results.* Plans for the analysis of results, as in other techniques, must be pre-determined; whether qualitative or quantitative methods are needed, and the nature of each, must be established according to the results needed to yield an adequate solution to the problem. In the cited example, the results must be capable of analysis so that relative worth may be determined.

Evaluative Criteria

The evaluation of the appraisal technique may be accomplished by applying the principles on selection or construction. These are summarized, and further interpreted, as follows:

1. The appraisal technique is used to gather data on the relative value of a phenomenon. The instruments used as a basis for appraisal may be classified as those techniques involving direct judgment and those techniques involving indirect judgment. Direct judgments concern the phenomenon itself, and indirect judgments concern the preparation of instruments for appraisal.

2. Direct appraisal concerns judgment that can be observed and rated according to some standard that is valid, reliable, and objective. Rating may be on a qualitative or quantitative basis; in both instances, however, it is necessary to standardize the instruments used as a framework for judgment.

3. Indirect appraisal concerns the preparation of instruments that can be used to judge. These are then applied to a situation and evidence gained for appraisal. The preparation of standards for a curriculum is an example.

4. The instruments used for judging or appraising a phenomenon are: check list, ranking, grading, rating scales (man to man, percentage, and defined categories), score cards, and weighting scales.

5. The assumptions underlying appraisal using judgment as a basis are:

- a. Better judgment can be secured when one item is judged at a time.

- b. The summation of the parts is a better judgment than the judgment of a total without independent part judgment.

The Documentary Analysis

The documentary technique consists of the collection of data from records which already exist. These materials consist of records which may be classified, described and analyzed. The kinds of documentary data used in research are legal records, governmental records, regula-

tions and materials, syllabi, books, official reports, committee reports, curriculum materials, forms, educational research, and the like. These materials must meet the test of being authentic, accurate, reliable and valid in order to be used in research.

Documentary analysis may also include a frequency analysis of materials found in records. The study of textbooks, for example, on frequency of mention or importance of concepts will yield information of value. Common errors such as health misconceptions arise from faulty analysis of written documents. Catalog analysis for the frequency of course, requirements, etc., will yield information on current educational practices.

Whether documentary data have worth is not established by the collected data, but must be determined by use of criteria that will yield an index of worth. The most frequently offered course in professional preparation for physical education does not necessarily establish the justification or importance of such a course.⁷

Selection or Construction Criteria

Materials available in documentary research must be determined prior to beginning research. Considerations resulting from the application of selective criteria will serve to determine whether or not the materials are of sufficient worth to yield valid results.

1. *Objectives.* The purpose of the research will establish the kind of documentary data needed, if any. If the research concerns health misconceptions of high school boys, records dealing with repressed opinions about health may be used, if the documents satisfactorily meet the other criteria.

2. *Framework.* The preparation of a framework constituting the scope of the problem represents, as in the instances of the other techniques, the starting point for the collection of documentary evidence. In the cited example, the scope and elements about health must be prepared.

3. *Validity.* The validity of documentary data is determined by whether it represents the conditions it is supposed to represent. Validity is determined, as in the historical method, by internal and external criticism of the data. If the content of the document represents the conditions as they exist, the record is valid. It is not always possible to test the document in this manner, however; in some instances other similar records will yield guides that may be used to test the reasonableness of the document. Analysis for misconceptions about health, for example, must find its validation in the basic sciences.

4. *Reliability.* The reliability of documentary data is determined by re-application of the technique, if this is possible. In counting frequen-

⁷ See the Appendix for illustration of the documentary technique, pp. 330, 331.

cies, for example, the reliability of this analysis may be determined by repetition. In instances when this is not possible, the records are considered to be reliable if they are found to be valid. Internal consistency in the documents also is an aid to reliability determination.

5. *Objectivity.* If several analyses of the same materials, by different examiners, are found to be alike, the documents are considered objective. This test is desirable in order to determine varying interpretations of records, and in order that the system of analysis may be standardized to yield acceptable objectivity.

6. *Levels of ability.* The examiner must be qualified to identify, describe, and record data from documents. The knowledge of the phase of education under investigation is a requirement.

7. *Manual of instructions.* All procedures of identification, description, and recording of data must be prepared as a manual of instructions. Error analysis, for example, would include definition of errors, how identified, and how each error is recorded.

8. *Scoring.* The system of recording must be determined and tested before analysis is made. Qualitative data are usually not scored, but a framework for systematic recording needs to be provided. The system of scoring for quantitative data must be planned according to the nature of the phenomenon. Sex, for example, is recorded as "male-female," but IQ research will usually be found in continuous units. Health conceptions probably should be scored as true or false.

9. *Application.* The documentary analysis only applies if data resulting from analysis are of sufficient quality and quantity to yield a solution to the problem. Documentary analysis is generally not useful in experimental studies since records are not found to represent the identical situation of an experimental problem.

10. *Analysis of results.* The planning for the analysis of data must be determined prior to collection of data. The nature and scope of statistical analysis should be determined so that the system of scoring may be reviewed to determine adequacy.

Evaluative Criteria

Selection or construction criteria should be used when an evaluation is made of documentary analysis. In summary these criteria are:

1. The documentary technique deals with already existing records. It is concerned chiefly with elements that can be identified, counted, or described. The determination of the characteristics of the count is an important part of documentary research.

2. Documentary technique should meet the following criteria:

- | | |
|------------------------|-------------------|
| a. Valid and authentic | c. Objective |
| b. Reliable | d. Representative |

3. The investigator should determine sources of information and gain cooperation for use of records or materials.

4. The formation of categories for frequency data must be pre-determined. The data must be organized to establish differences.

5. Documentary analysis must be further analyzed to determine reasons why frequencies occur. The mere summary of frequencies, by itself, does not establish worth. Reference to importance must be established.

6. Frequency analysis must consist of a time sequence: How often does it happen?

7. Statistical methods are needed in order to analyze results effectively. Results may be descriptive, comparative, or analytical.

Job Analysis

The job analysis technique⁸ is used as a pattern for the collection of data about the component analysis of a job or conditions of employment. The job components consist of job functions or duties, job requirements, administrative relationship and duties, time analysis, facilities, and leadership qualifications. Personal elements are those of attitude, safety, health, efficiency, salary, job difficulties, knowledge, habits, skills, fatigue, and the like. A study of job conditions and personnel yields data on current practices and conditions. These data may serve to reflect job weaknesses, duplication, inefficiency, etc. The resulting data may be used when planning constructive job analysis and for improving conditions of work and personal efficiency.

Job analysis data are collected by use of the questionnaire, interview, observation, appraisal, documentary analysis, tests, photographs and motion pictures, case study, and sociograms. Information usually includes frequency of occurrence, relative importance of various duties and conditions, and relative difficulties. The duration and intensity of various performances may also serve to yield significant data.

Selection or Construction Criteria

Job analysis utilizes the techniques presented in this chapter. Of these, the most common are the questionnaire, interview, and observation. These techniques utilize the check list, ranking, grading, rating scales (man-to-man, percentage, and defined categories), score cards, and weighting scales. These instruments are analyzed in terms of selection or construction criteria particularly under the appraisal technique. This discussion, along with that of the questionnaire and interview, will serve to indicate how this instrument may be prepared for application.

⁸ See the Appendix for illustration of the job analysis instrument, pp. 331, 332.

Evaluative Criteria

Reference should be made to the appropriate technique for evaluative criteria. These references include all techniques. The job analysis does not add to these techniques but simply utilizes them in reference to job analysis.

The Test

The testing technique consists of applying instruments of measurement and evaluation as indicated by the collection of data required for the solution of problems pertaining to the product (outcomes) and the process of education. Measurement consists of applying tests, rating scales, etc., to gain information about the status, achievement, educability, and capacity of the individual. Evaluation consists of applying standards, rating scales, and tests for the purpose of gaining information about facilities, leadership, activities, time, administration, etc., or the aspects of education that concern the process of achieving outcomes.

The major concern when a test is applied, as in the instances of the other techniques also, is the criteria for either the selection of a test or the construction of one meeting the conditions of the problem. Standardized tests do not always meet the requirements of the problem; therefore test construction is usually necessary. All selection or construction criteria are important, but, the criteria of validity, reliability, and objectivity are of particular significance. It is also advisable to prepare or have available test norms. In addition to the criteria dealing with the value of the test, administrative criteria of need equipment, time for testing, difficulty of administration, etc., must also be considered before a test is selected or constructed.⁹

Selection or Construction Criteria

It is usually necessary to construct a test to fit the requirements of a problem; however, it is first advisable to review available tests, according to the following criteria, to determine whether one of these tests may be used. If construction is necessary, the following criteria should also be used as guides.

1. *Objectives.* This criterion does not differ from other techniques. Test construction or selection begins with the purpose of the research. If social outcomes are to be measured, tests must meet the conditions of this objective.

2. *Framework.* A framework consisting of all aspects must, as in the instances of other techniques, be established. In the example stated, all aspects of social outcomes must be established before test selection or construction may begin. What needs to be measured must be known.

⁹ See the Appendix for illustration of the test instrument, pp. 332, 333.

3. *Validity.* A test cannot be used unless it has satisfactory validity established by demonstrating that the nature and scope (content validity) of the test include all information needed. In the social outcomes example, the test should yield information on all aspects of the social objective. A test may also be validated by statistical methods. If a significant correlation (.80 or above) is obtained with a valid criterion, a test may be considered valid. These criteria may be groups of demonstrated ability (high and low in ability to be measured), performance scores (time for distances or other demonstrated performance), other tests (tests with established validity), and composite scores (sum of all measures with content validity established). Tests to measure social outcomes may be constructed on the basis of these criteria.

4. *Reliability.* Test reliability is determined by applying the same test to the same group by the same examiner, as soon following the first application as possible so that changes in the phenomenon being measured will not occur. If learning takes place (knowledge tests), on a second administration either the split-halves method may be used, or a parallel form must be prepared. In the split-halves, the odd-even items are compared (knowledge tests), with reliability estimated for the full test (Spearman-Brown Formula). In the parallel forms the two tests must be prepared (knowledge test forms A and B, which are considered equal in content and difficulty). If the two yield like results, the test is judged reliable. Reliability must reach a .90 standard for individual use, and a .80 standard for group applications.

5. *Objectivity.* The considerations of objectivity are the same as reliability. If the test is to be administered by several examiners, objectivity must be established so that results may be comparable. The methods of determining objectivity and standards (content and statistics) are the same as in reliability.

6. *Level of ability.* Tests must be selected and constructed to fit the population group to be investigated. A health knowledge test, for example, prepared for the junior high school should not be used in the elementary schools. Unless one is able to understand the requirements of the test, abilities cannot be measured. The examiners must also have the needed skill for test administration.

7. *Manual of instructions.* It is essential that all details of directions for administration, scoring, and interpretation should be included in a manual of instructions.

8. *Scoring.* All test items must be scored according to the nature of the phenomenon being measured. Time measures, for example, are usually in seconds. If the distance is short (100 yards), further refinement is needed (tenths of seconds). Scoring may be qualitative (good, poor, etc.) or quantitative (time, distance, points, etc.).

9. *Application.* Tests can only apply to population groups according

to the information desired and if the test yields this information about the population. A test designed to measure social outcomes in physical education is probably not valid as a measure of social outcomes of a parent-teacher social group.

10. *Analysis of results.* The statistical methods needed to yield a solution to the problem must be determined before a test is applied. For correlational analysis, a continuous system of scoring should be used. Two-fold (yes-no) scoring may be used, but the information is not as differentiative.

Evaluative Criteria

The test instrument is most frequently used in connection with surveys, although the instrument is used in all methods of research. Determining the personality characteristics, social characteristics, physical abilities, and the like, are examples of survey testing. The following criteria should be considered, in this connection, along with test selection or construction criteria.

1. Survey testing consists of applying instruments of measurement and evaluation for the determination of status of an institution, group, or individual. Measurement concerns the product or outcomes (individual); evaluation concerns the process (leadership, facilities, activities, philosophy, etc.).

2. Sampling criteria of adequacy, representativeness, and randomness must be established in survey testing.

3. Survey testing must be conducted with reference to a clearly defined problem in the framework of any research method (historical, experimental, etc.).

4. Survey testing is used to measure outcomes of an educational program. These are: achievement, status, educability, and capacity. This information may be used for diagnostic, classification, or prognostic purposes.

5. When the results of survey testing are analyzed, all conditions surrounding the testing program must be considered. Some of these factors are tests used, socio-economic conditions, geography, climate, institutional emphasis, and facilities.

6. In the selection or construction of test instruments to be used in the survey, the following criteria must be considered:

- | | |
|------------------------------------|---------------|
| a. Validity | d. Norms |
| b. Reliability (test and sampling) | e. Equipment |
| c. Objectivity | f. Time |
| | g. Difficulty |

7. The results of survey testing can be summarized effectively only by the proper selection and application of statistical methods. These are applied for the purpose of description, comparison, or analysis.

- a. Description: mean, standard deviation, etc.
- b. Comparison: "t" test, correlation, etc.
- c. Analysis: partial correlation, multiple correlation, etc.

The Photograph and Motion Picture

The photograph and motion picture techniques are used when the phenomenon to be measured includes statistics of time and direction taking place at a rate that cannot be recorded by observation, or by instruments of time alone such as the stop watch. When skill patterns are desired, the photograph or motion pictures are often the only effective techniques. Records may be made that may be analyzed as a permanent print or frame-by-frame enlargement of the motion picture film. An analysis of the skill patterns of the high jump is an example of the need for motion pictures. Time analysis of the various movements in the jump may be determined together with the skill patterns. The valid analysis of this performance may be gained by motion pictures if all dimensions are recorded. This requires several cameras properly synchronized. In the high jump for example, the front, back, side, and top views are needed.¹⁰

Selection or Construction Criteria

The camera is the instrument used in photographic research. Photography requires skill; such knowledge as lighting, film, background for the object or subject, distances, etc., is essential for results yielding data useful for research purposes. It is also advisable to review the following criteria as a basis for planning the use of the camera.

1. *Objectives.* The purpose of the research, of course, will establish the need for photography; if the research proposes to study the various patterns of human movement, it is then established that photography is necessary.

2. *Framework.* It is essential that all aspects of the phenomenon for study be identified. If the high jump is to be analyzed, the elements or patterns of the high jump needed for a complete analysis must be determined. Such elements as the distance of the run, length of steps, take-off (foot, distance, etc.), and body movements during the jump, must be known in order to place cameras properly so that all data may be recorded.

3. *Validity.* There are numerous errors that may result in using photography, and all errors will reduce validity. The distance of the subject from the camera, the placement of the camera, and the focal length of the lens are important. Because an expert technician is needed to make proper provisions for photographic recordings and analysis, further discussion will be of little value. References should be made to articles on photography presented in the Bibliography.

4. *Reliability.* The camera is a reliable instrument, but the subject

¹⁰ See the Appendix for illustration of photographic instrument, p. 333.

may be unreliable in varying degrees. It is necessary to photograph the subject at least twice under the same conditions in order to determine the degree of reliability. Direct comparison may be made of the two pictures to determine the points of the analysis at which unreliability exists. Corrections must then be made or the measurement discarded.

5. *Objectivity.* The considerations are similar to those of reliability; however, if several photographers are to be used, their objectivity of measurement must be determined. Different photographs may be made of the same subject under the same conditions, then directly compared. If objectivity is low, the skill must be improved or conditions of subjects corrected. If these improvements do not improve objectivity, the measurements must be discarded if results are too variable or in disagreement.

6. *Level of ability.* This criterion has particular reference to the photographer; before the camera may be used the examiner must have sufficient training so that the results are valid.

7. *Manual of instructions.* A manual containing all details of the use of the camera, placement of the subject, movements of the subject, and analysis of results is needed.

8. *Scoring.* How analysis is to be made of the photograph must be determined before photography is used. In posture analysis, for example, reference points are placed on several parts of the body to determine amounts of deviation of the various body parts. Results may be in terms of angles, millimeters, etc. These measures may be translated to subject size by photographic correction.

9. *Application.* The photographic technique should only be used when the photographer is properly skilled, the subjects can meet the requirements of the problem, and the problem can be solved by this technique. If an analysis is to be made of natural walking posture, the subject must be able to walk in this manner when photographed. If the photograph does not represent a true situation (posture, for example) of a variable needed for the solution of the problem, it cannot be used.

10. *Analysis of results.* Analysis may be made on the permanent print, or on a screen. Dividers, ruler, and protractor are the instruments needed to analyze the records. Reference again should be made to articles on photography for details if that instrument is to be used.

Evaluative Criteria

The criteria for the evaluation of the photographic technique in application and for the selection of the technique are summarized as follows:

1. The photographic technique must be used in the collection of data when the phenomenon for study of movements must be analyzed in sequence for the solution of the problem. For example, the mechanical pattern of the high jump.

2. In many instances it is necessary to apply the photographic technique in several dimensions for the complete analysis of movement.

3. Photographic corrections are essential for translations of measurement units into absolute units of the object or movement photographed.

4. The photograph properly applied and analyzed represents the highest form of documented data. It registers completely and impartially; all combinations are preserved.

5. The educational research worker must be trained, or seek expert help, in the use and interpretation of photographic techniques.

6. Reference points must be placed on the subject or object to be photographed for the purpose of analysis.

7. Data resulting from the analysis of photographs may be qualitatively or quantitatively analyzed; the latter analysis is the most common and essential.

Sociometry

Sociometry is the science of the human group and the study of the interactions of people. The sociometric technique is the instrument applied to record group and individual actions and reactions. The problems solved by data gathered through use of this technique are those concerning social status, group integration, group and individual acceptance, individual and group adjustment, development, and survival. The elements operating in a group structure are feelings of individuals toward each other, the degree of acceptance or rejection of an individual or group according to other individuals or groups, the degree of frustration existing in a group or individual, the degree of motivation which exists in a group or individual, and other elements such as morale and loyalty. These elements are found in all groups, particularly in the activity situations of physical and recreation education. Because physical and recreation education can make a contribution to the survival, adjustment, and development of an individual in a group, it is necessary that information be gained to establish the nature and scope of these programs. Results yield data on status, achievement, educability, and capacity with varying degrees of success. Construction of appropriate sociometric techniques represents a need. The techniques now available are the sociometric test, the spontaneity test, the sociogram, sociometric assignment, and spontaneity training. The sociometric test is a measure of the amount of organization in a social group determined by individual choices according to an established criterion. The spontaneity test involves a study of the underlying causes of attraction and repulsion. Such emotions as anger, fear, and sympathy are recorded by the sociometric instrument. The sociogram is a method of charting the organization of a group's attraction-repulsion patterns as revealed by the sociometric test and the spontaneity test. It indicates the position of each individual in relation-

ship with other individuals. The assignment technique gives the individual the most favorable position for adjustment on the basis of the attraction-repulsion pattern resulting from the application of the sociometric test, the spontaneity test, and the sociogram. Individuals may have positions they may not wish to keep; efforts, therefore, are made to adjust the individual to the group or to adjust the group to the individual. Spontaneity training is related to the assignment technique, and is used to train the individual for more complete expression and participation in the group. It is the means by which the individual can solve resistance problems.¹¹

Selection or Construction Criteria

The criteria for the selection or construction of techniques are all applicable in the instances of the sociometric techniques. Each, however, has special interpretation for application of the criteria. Reference therefore needs to be made to sources dealing more completely with these techniques (see the Bibliography). It is necessary that each criterion be recognized before the technique is applied, particularly evidence supporting the validity and reliability. When results are determined by individual choices (sociogram), for example, validity is established if the choice represents the true attitude of the individual making the selection. Unreliability may be due to a changing attitude and therefore will not reduce the validity of the instrument. Some considerations, according to the criteria, with respect to the sociogram are:

1. *Objectives.* The statement of purpose will again indicate whether or not sociometry is needed. If the objective of a research is to study group structure, sociometric instruments are needed.
2. *Framework.* The elements involved in the social structure must be established before an instrument is selected or constructed. If, for example, the problem concerns the group structure in a camp, all elements of the camp situation related to group structure must be included in the framework.
3. *Validity.* The validity of the sociometric technique is determined by content analysis. If judgment represents the situation that exists, the instrument is valid. Validity must be established on both the theoretical and operational basis. For example, in the sociogram the stated likes and dislikes of the individual are considered a valid indication of the social structure of the group.
4. *Reliability.* The consistency of judgment may represent a valid change in attitude or chance errors due to unreliability of the instrument. This must be determined.
5. *Objectivity.* If the investigator is applying the instrument, objectivity considerations are not essential, but, with several investigators judging

¹¹ See the Appendix for illustration of sociometric instruments, pp. 333-335.

a group, objectivity determinations are necessary. In the sociogram, likes or dislikes of an individual do not need to be consistent with others.

6. *Level of ability.* This consideration concerns both the investigator and the individual. The individual must be able to make valid choices, for example, in the sociogram, and the investigator must be able to apply and interpret sociometric data.

7. *Manual of instructions.* A manual of instructions is needed containing all details on application and analysis. In the sociogram, for example, the schedule and other details in administration must be described.

8, 9, 10. *Scoring, application, and analysis of results.* Considerations are similar to the other techniques and must be established by trial run. Scoring in the sociogram must differentiate all individuals in a group if attitudes about each other are not similar.

Evaluative Criteria

When sociometric methods are used, it is essential that the selection or construction criteria be applied to the instrument designed for the investigation. In addition, the qualifications of the investigator for sociometric research must be established.

The Case Study

The case study is presented in connection with the chapter on methods of research (Chapter 9—Causal Analysis). In connection with the application in the causal-case study method, it serves as a research pattern in problem solving; in application with the survey method, it serves as a technique for the purpose of collecting data. In both instances, however, the characteristics of the case study are similar. It simply has two applications in research, designed for different purposes. Criteria presented will deal with the application of the instrument.¹²

The case study is applied when the research deals with an analysis of all factors of a selected problem related to one individual, one institution, one race, one community, etc. It is used when an analysis of individual situations is necessary because the interpretation of the factors of the problem differs from case to case. After all cases have been analyzed it is possible and advisable to establish the common factor or factors operating in all cases.

Selection or Construction Criteria

It is usually necessary to prepare the case study report or form to fit the problem under investigation. If a case report is available (survey of the public schools in a community), it is necessary to apply the following criteria in order to determine adjustments needed for an application in

¹² See the Appendix for illustration of case study instrument, p. 335.

another community; or if a case form is to be prepared, the following criteria should be applied.

1. *Objectives.* The considerations of objectives are like those presented in other techniques. The purpose of the research will establish whether a case study technique needs to be used. A study designed to determine how a community should plan a health program establishes the need for the case study.

2. *Framework.* All elements needed to solve the problem need to be determined before the case record or form may be constructed. In the cited example, such elements as activities, facilities, and leadership need to be included, and each of these elements needs to be further delineated.

3. *Validity.* The validity of a case study is established if the content represents the data needed to solve the problem and represents the situation of the problem. In a health survey, the items on facilities, for example, must represent all facilities in the community, and, if required in the problem, the quality and quantity of facilities must be included.

4. *Reliability.* The consistency of an individual's reaction in the collection of data in a case study may be determined by repeating the investigation. Systematic errors, however, must be first identified and eliminated. The reliability of the record also must be known so that unreliable items may be improved or eliminated.

5. *Objectivity.* When several investigators are used, it is important that the collection of data follows the same procedures and yields the same results. Two or more investigators in the same community should be used on a trial run before data are collected for problem solving.

6. *Level of ability.* The application of the case study technique by the investigator must be established prior to the investigation. Special training is needed, in the use of the case study, which involves an understanding of the instrument and the field of investigation. The nature and scope of data needed will come only with an understanding of the field of study.

7. *Manual of instructions.* All details of the application of the case study must be contained in a manual of instructions, including a description of the items, how the case study is applied, and how records are made and results summarized.

8. *Scoring.* The system of recording results of the needed data must be established prior to application of the case study. Both qualitative and quantitative methods of scoring need to be made. Recording machines and secretarial records may also be utilized.

9. *Application.* The case study technique is used when it is desirable to interpret all data with reference to one situation. It should not be applied to problems if relationships are established on a group basis (national surveys, for example).

10. *Analysis of results.* The plans for analysis design must be deter-

mined in terms of the needs for the solution of the problem. "Yes-no" data, for example, for the health status of an individual are usually not of much value.

Evaluative Criteria

The strength of the case study as a research instrument, in a particular problem, may be gained by an application of the selection or construction criteria. The major aspects of the illustration of this instrument are in the validity of the record, and the methods used to summarize and analyze case data. Preparing an operationally effective case record form is a considerable task. It must result not only from theoretical considerations, but also from its effectiveness in application; that is, the extent to which it represents the existing situation.

CHAPTER 11

Analysis Procedures—Analysis and Interpretation of Data

Data resulting from research may be either qualitative or quantitative. Qualitative data deal with the *identification* and *description* of the constituent parts that provide a solution to an educational problem; quantitative data consist of “measures of amount” of the various parts of the variables constituting the problem solution. The resulting data in qualitative analysis are narrative statements on the identified variables of a problem, and the data resulting from quantitative analysis may be numerical frequencies and statistics, or narrative statements.

The narrative statements in quantitative analysis are expressed in amount, but in qualitative analysis they are for identification or description. For example, a statement that religious influences are reflected in a community educational program is qualitative analysis on the identification of an influence. Further description of the nature of the religious influence would also constitute qualitative analysis. If the religious influence is measured in amount, the data then become quantitative. This measurement may be accomplished through the use of a rating scale that will yield a numerical score, or through a statement indicating that this influence is strong or weak. Procedures on the analysis of research data may be applied, according to this framework, to the evidence resulting from educational research. In all instances the analyses have potentially the same quality as the basis for solving educational problems. Numerical data may be summarized and treated with less difficulty. The treatment of results simply represents an orderly arrangement of facts; the interpretation of the facts represents the real test of the quality of research.

CLASSIFICATION OF DATA

It has been previously stated that data are classified into qualitative and quantitative categories; the former deals with constituent parts while the latter is concerned with the amounts of the constituent parts. These divisions are further delineated and illustrated as follows:

Qualitative Analysis

When educational problems are solved as the result of identifying and describing constituent parts, analysis of data becomes qualitative. For example, suppose the problem consists of determining the elements of physical fitness necessary for a mile run. Research would be directed to identify those elements which are a part of this performance (Figure 18). Such elements as endurance, muscular strength, agility, and coordination would probably be identified.

- I. Qualitative data: *constituents of a problem.*
 - A. Statements of *identification*; e.g., constituents of physical fitness.
 - B. Statements of *description*; e.g., description of each identified element of physical fitness.
- II. Quantitative data: *amounts of each constituent of a problem.*
 - A. Statements of amount: *narrative* statements.
 1. *Description*; e.g., endurance is highly important.
 2. *Comparison*; e.g., endurance is more important in physical fitness than body type.
 3. *Analysis*; e.g., the factors of physical fitness in order of importance are: endurance, strength, coordination, etc.
 - B. Numerical data:
 1. *Dichotomous*; e.g., male-female, good-bad, pass-fail, married-single, yes-no, above-below, average, etc.
 2. *Categorical*; e.g., A,B,C,D,E; excellent, very good, average, poor, very poor; over-chosen, neutral, under-chosen, etc.
 3. *Continuous*; e.g., time—seconds; distance—yards, feet, miles; weight—pounds; age—years, months, etc.

FIGURE 18. Classification of Types of Data.

The Problem: The Construction of a Physical Education Program

(Probable Components)

- I. Governing Influences

A. Philosophy	D. Facilities
B. Economics	E. Religion
C. Climate	F. Etc.
- II. Educative Components
 - A. Selection of Activities
 - B. Evaluation of Activities
 - C. Adaptation of Activities
- III. Protective Components

A. Classification	D. First Aid
B. Safety	E. Etc.
C. Medical	

FIGURE 19-a. Probable Components of an Educational Problem.

Example of Cited Problem Solved by Use of
Qualitative Analysis: Determination and description
of the constituents of the physical education program.*

Part I: *Constituents*

A. *Problem*: What are the constituent parts of the program of physical education?

B. *Solution*: Identification of all constituents needed for an effective program of physical education.

Part II: *Characteristics*

A. *Problem*: What are the characteristics of each identified constituent?

B. *Solution*: Factual description of each constituent—economic, selection of activities, evaluation of activities, etc.

Part III: *Program*

A. *Problem*: What is the program of physical education?

B. *Solution*: Program presented on the basis of all constituents included in an effective program of physical education.

Example of Cited Problem Solved by Use of
Quantitative Analysis: Determination of the relative
importance of constituents known to be a part of the program.**

Part I: *Measurement of Constituents*

A. *Problem*: What constitutes the magnitude of each element of a program of physical education?

B. *Solution*: The number of activities, the amount of facilities, the amount of the budget, etc.

Part II: *Relationships*

A. *Problem*: What is the relationship (statistical) among the various constituents of the program of physical education?

B. *Solution*: Correlation coefficients will indicate the amount of the relationship.

Part III: *Program*

A. *Problem*: What constitutes the relative emphasis to be placed on each constituent of a program of physical education?

B. *Solution*: The program of physical education is planned according to relative emphasis indicated by statistical relationship.

FIGURE 19-b. An Illustration of Qualitative and Quantitative Analysis of an Educational Problem.

* In qualitative analysis the problem is concerned with the composition and characteristics of the phenomenon constituting the problem. In this instance, it concerns the *nature and scope* of a program of physical education.

** In quantitative analysis, the constituents are usually known; the problem concerns the amounts of each involved in the program and their relationships.

In this instance each identified element needs to be described according to its physiological characteristics. The solution of this problem has been accomplished entirely by qualitative methods; no attempt has been made to determine the relative importance of each element, nor the amount of the relationship with the performance criterion. Therefore, quantitative methods have not been used.

In order to further delineate qualitative analysis a problem on the

construction of a program of physical education is given (Figure 19). This solution illustrates both the qualitative and quantitative methods of analysis. As in the physical fitness example, the problem is solved by qualitative analysis when the elements of the physical education program have been identified (Part I) and described (Part II). Program construction can therefore be accomplished with this evidence (Part III). How activities are selected, evaluated, and adopted would be established. The nature of the methods of classifying pupils, etc., and the nature of the considerations on influences (such as religious, and economic) could also be presented as they are related to the physical education program. The solution of this problem is the result of the qualitative evidence collected and analyzed in the investigation. Whether or not a more adequate solution would result if quantitative analysis is applied is not a matter for discussion. The nature of the solution, whether qualitative, quantitative, or a combination of both, must be established as part of the design for research.

The nature of the qualitative evidence is in the form of narrative statements, which fully establish the identified elements, and statements of description, which further establish the nature of the identified variable. The *nature* and *scope* of the religious influences in a program of physical education is an example.

Quantitative Analysis

When an educational problem is solved as a result of establishing the *amount* and *relationship* of the elements in a problem, the analysis becomes quantitative. In the cited problem of the physical fitness elements constituting a performance (mile run), the quantitative solution to the problem would result in information demonstrating the relative importance of each element, and the amount of the relationship of each element with the performance. Such evidence would be found in the form of narrative statements of description (endurance is highly important), comparison (endurance is more important than body build), and analysis (the factors of physical fitness are: endurance, strength, coordination, etc.) (Figure 18). Evidence may also be presented in the form of numerical data, which may be dichotomous (e.g., above-below average in endurance), categorical (e.g., excellent, average, or poor in endurance), or continuous (e.g., endurance measured in time units of seconds).

The quantitative method of analysis has been further illustrated by application to the problem of the construction of a program of physical education (Figure 19). Presentation is made of how this problem is solved qualitatively (section on qualitative analysis). It is a matter of identifying and describing each element or component of the program of physical education. If quantitative analysis is applied, it is first necessary to obtain a measure of each element of the program of physical education (Part I),

determine the relationship of various elements (Part II), and then plan the program of physical education according to this quantitative evidence (Part III). The evidence in this instance indicates the amount of the relationships and the relative values of the various activities so that program planning may be made according to the relative importance of each phase. The amount of emphasis placed on each phase of the program is known as the result of quantitative analysis.

The original design for the solution of a problem must also include the nature of the analysis. The criterion for selection is, of course, determined by the facts needed to yield an adequate solution to the problem. In the illustration cited on the program of physical education, the most adequate solution to this problem would include both qualitative and quantitative analyses. It is important to determine not only *what* are the constituent parts of a program of physical education, but also the *relative worth* of each.

The procedures of the solution of educational problems may utilize the qualitative or quantitative analyses or a combination of both. The resulting data may be in the form of narrative statements (qualitative or quantitative), or they may be numerical data that are dichotomous, categorical, or continuous. Knowledge of the field of investigation is a requirement for both qualitative and quantitative analysis; knowledge of statistical methods is usually an additional requirement for quantitative analysis.

Relationship of Types of Data and Analysis

It has been previously indicated that data resulting from research may be either qualitative or quantitative. These divisions of data are further delineated into qualitative data represented by narrative statements of identification and description (Figure 18). It has also been noted that quantitative data may be found in narrative statements of description, comparison, and analysis, and numerical data in the form of dichotomous, categorical, or continuous variables (Figure 18). With these known types of data resulting from problem solving in education, it next becomes a matter of determining *how* resulting data may be effectively analyzed. Research without tools for analysis would be analogous to placing all coins into one compartment rather than segregating into compartments of like size coins, followed by a system of determining the total amount and the amounts of each coin. An organizational framework to serve as a guide for research workers on the selection of appropriate tools for the analysis of educational data is herein presented (Figure 20).

The qualitative analysis tools consist entirely of narrative statements that identify and describe the component parts of a problem representing its solution (Figure 20). A problem concerned with the determination of the components of physical fitness for the mile run results in data that

Types of Data

Quantitative*

1. Dichotomous—

e.g., yes-no

2. Categorical—

e.g., A, B, C, D, E

3. Continuous—

e.g., weight in pounds

Statistical Analysis

Comparative**

- Diff. in number
- Diff. in percentage
- Graphic methods
- Tetrachoric " r "
- Biserial " r " (with continuous data)
- Chi-square test

- Diff. in number
- Diff. in percentage
- Graphic methods
- Contingency " r "
- " χ^2 " test
- Qualitative-quantitative " r " (with continuous data)
- Chi-square test

- Product-moment linear " r "
- Product-moment curvilinear " r "
- Graphic methods
- " χ^2 " test
- Chi-square test

Analytical**

- Partial " r "
- Regression
- Multiple R
- Causal analysis
- Factor analysis
- Standard error of estimate

- Partial " r "
- Regression and prediction
- Multiple R
- Causal analysis
- Factor analysis
- Variance analysis
- Standard error of estimate

- Partial " r "
- Regression and prediction
- Multiple R
- Causal analysis
- Factor analysis
- Variance analysis
- Standard error of estimate

Types of Data

A. Quantitative*

1. Description

Amounts indicated by descriptive terms: size—large, small, average, etc.; color—black, white, etc.; quality—excellent, average, poor, etc.

2. Comparison

Likeness and difference indicated by comparative terms: size—larger, smaller, equal, etc.; color—darker, lighter, etc.; quality—better, poorer, equal, etc.

3. Analysis

Composition indicated by terms of relative importance: e.g., the factors of physical fitness in order of importance—endurance, muscular strength, coordination, agility, etc.

B. Qualitative*

1. Identification

Statements indicating composition: constituents of outcomes—organic, skills, knowledge and social; leadership, philosophy, measurement and evaluation, administration, programs, trends, and professional preparation.

2. Description

Statements of description: e.g., physiological description of endurance, strength, etc.; psychological and sociological nature of leadership; educational description of professional preparation, etc.

* Reference should be made to Figure 18 for a more detailed description of each type of qualitative and quantitative data.

** Reference should be made to the discussion on statistics for more specific suggestions on statistics.

Narrative Analysis

FIGURE 20. The Relationships of Types of Data and Analysis.

(A Guide for the Selection of Analysis Tools)

may be analyzed qualitatively. The results of this analysis are a series of statements indicating the components, and usually additional qualitative analysis describing each element. Other problems that utilize qualitative tools of analysis are those educational problems concerned with the composition and description of various phenomena. These include problems in philosophy (e.g., what is the modern philosophy of recreation?), objectives (e.g., what are the component parts of the organic skills, knowledge, and social objectives of physical education?), community organizations and auspices (e.g., what are the community organizations sponsoring recreation programs?), measurement and evaluation (e.g., what are the elements to be included in the measurement of leadership success?), programs (e.g., what constitutes the activities for a balanced program of physical education?), leadership (e.g., what are the leadership qualifications for public recreation leadership?), administration (e.g., what represents the duties for a health coordinator?), history and trends (e.g., what are the modern trends in recreation?), and professions (e.g., what are the professional education requirements for successful leadership in health education?). Research conducted on these problems (using all techniques: the questionnaire, interview, observation, etc.) will result in evidence that, when summarized by narrative statements, will represent the problem solution of the composition and description of the component parts of the problem solution—both significant and insignificant variables.

Quantitative analysis tools involve narrative statements and statistics. Narrative statements indicate amounts in the form of description, comparisons, and analysis. Statistics are applied for the purposes of description, comparison, and analysis of dichotomous, categorical, and continuous data (Figure 20). Descriptive narrative statements represent the analysis of data by use of descriptive terms connoting amount (e.g., size—large, small, average; color—black, white; quality; quantity; etc.). These terms indicate a quantitative description of a variable and may be any term descriptive of amount. Comparative analysis using narrative statements indicating amount may also apply to any statement or term that presents likeness and differences of variables (e.g., size—larger, smaller, equal; color—darker, lighter, same; quality—better, poorer, same, etc.). Narrative statement analysis also indicates amount, and points out the relative importance of the variables representing a problem solution. If the problem is one of determining the constituents of physical fitness, the narrative statements would present the order of importance of each constituent. Thus, narrative analysis is used in quantitative research when the problem solution requires amount, and when the instruments used (observation, interview, questionnaire, etc.) do not result in numerical data.

Numerical data resulting from quantitative research are described,

compared, and analyzed by use of statistics. These tools are selected and applied according to the types of numerical data that result. These data are dichotomous (two-fold); categorical (three or more categories, up to ten), and continuous (in small units and number more than ten). These three types of data may be analyzed by the use of descriptive statistics, comparative statistics, or analytical statistics; the statistics applied to the various types of data are presented in Figure 20. Reference needs to be made to a standard text for methods of calculation;¹ the nature of each statistic, however, is present in order to serve as a guide for the selection of the proper statistics for the purposes of analysis.

Descriptive statistics are used to analyze a single score or scores so that quantitative meaning is gained. These descriptive statistics are:

1. *Absolute zero points.* These are the world's records, the tallest individual, the shortest individual, the defined zero point in a 0-100 grading range, etc. Numerical data may be statistically described according to the distance from these reference points. Additional statistics may be used in this description, such as rank order from the absolute zero, percentage reading a certain distance from the zero point, etc.

2. *Rank order.* This indicates the placement of a score from the zero point of one. The rank of one usually represents the best record. Each score is given a rank order. If there are 50 scores, each would receive a rank; the largest score would be assigned a rank of one, the second largest two, etc., with the smallest (number 50) a rank of 50. In the instance of similar scores, the successive ranks are averaged with each assigned the same rank order.

3. *Frequency distribution.* The frequency distribution statistic consists of intervals, each of the same size, and includes the entire range of scores. Frequency distribution by itself is an excellent method of description. The reference point for description of a score may be any selected interval, or may be the distribution as a whole.

4. *Percentiles and other similar measures.* These include all counting measures and are expressed as percent. They are applied to a series of scores by counting the number of scores falling above and below a given point or between two given points and then expressing the amount in percent. For example, the 70th percentile indicates that 30 percent of the frequencies fall above this point and that 70 percent fall below. The measures are percentiles (0 to 100 in units of one), vigintiles (units of 20), deciles (units of 10), quintiles (units of 5), quartiles (units of 4), and terciles (units of 3).

5. *Central tendency.* The point reference for central tendency meas-

¹Larson, Leonard A., and Yocom, Rachael D., *Measurement and Evaluation in Physical, Health and Recreation Education*. St. Louis: C. V. Mosby Co., 1951. See Chapter XV, Descriptive Statistics; Chapter XVI, Comparative Statistics; and Chapter XVII, Analytical Statistics.

ures is the central massing of the frequencies, or the point around which the frequencies tend to fall. The measures include the mean, median, and mode. The mean describes the central massing according to the distance the score falls from the mean; it is a deviation measure of central tendency. Each score in the distribution is weighted by the distance from the central tendency. If it is not desired to weight extreme scores, the mean should not be used, or the extreme scores dropped. The median is a number measure of central tendency; it expresses the number of scores that fall above and below the central tendency; i.e., fifty percent on each side. It is used when a percentage description is wanted or when it is desirable to give weight to extreme scores. The mode is a point in a distribution at which there is the largest concentration of scores; in grouped data it is the midpoint of the interval containing the largest number of scores. It is used when information is desired on incidents that happen most frequently. Central tendency measures are used as a one-value measure of description.

6. *Variability.* In most instances it is not only necessary to describe the central massing of scores, but also necessary to describe the amount of variation. Variability is expressed by two fundamental methods: (1) as a total amount of deviation of the scores about the central tendency, and (2) as the number of scores falling above or below the central tendency or any other point of the distribution. The most common technique of the former is the standard deviation. The percentiles, vigintiles, deciles, quintiles, quartiles, and terciles are the statistics expressing the latter technique. The standard deviation is used when the distribution is normal and when it is desired to give weight to all scores. The number measures are used when distributions are not normal and when it is not desired to weight extreme scores.

7. *Normal curve.* The normal curve is a symmetrical, bell-shaped curve that describes the results of measurement in a graphic manner. The universe of educational data has been demonstrated to be normal in most instances. If deviation is found, it may be accountable in the procedures of drawing the sample or in the techniques of measurement. It is, therefore, important in descriptive statistics to know the degree of normality. Some statistical tests also require normal distribution (standard deviation, for example). The most important property of the normal curve, for descriptive purposes, is the division of the curve into percentage areas. Knowing the mean and standard deviation, and knowing that the distribution is normal, it is possible to determine the percentage of scores falling between any two points on a scale or above or below any two points by reference to the percentage area tables of the normal curve.

Whether or not a distribution is normal may be tested by inspection. When a distribution is plotted as a frequency polygon, if the distortion of the distribution does not follow the line of the bell-shaped curve,

it is judged that the distribution is not normal. Calculation tests for normality may be used (Chi-Square Test), but these are beyond the scope of most applications of descriptive statistics.

8. *Standard scores.* It is sometimes necessary to translate measures from raw score units to arbitrary scores that have the same starting point and the same variability in order that they will be made comparable. Scores that vary in size and variability cannot be compared. There are two kinds of standard scores, those that are calculated on counting-percentage basis (percentiles, vigintiles, deciles, etc.), and those which are calculated on the deviation basis using the mean and standard deviation (Z-score, T-score, H-score, cumulative frequency scores, and scores based in the 0-100 range).² The former standard scores are used when distributions are distorted from the normal; the latter are used when distortions are normal. Thus scores in two distributions that equal the 40th decile are equal. They may be summed, averaged, etc., using any arithmetic manipulation. For example, a T-score value in the high jump of 60 is arithmetically comparable to a T-score value of 40 for the 100 yard rank; the average performance is therefore 50.

9. *Reliability.* Reliability is of two types: score reliability and sampling reliability. Score reliability discussion is presented in Chapter 10. The preparation of a sample is found in Chapter 9. Discussion, therefore, will center entirely on sampling reliability according to the statistical methods of determining the amount of probable variation from sample to sample.

It is seldom possible or desirable to measure all individuals in the population group being researched unless the total universe is small (it can be one individual). A sample is therefore used. It is necessary to know the amount of probable deviation of the sample from the estimated true value of the population; this involves probability statistics. The statistics thus far considered are those applied to an obtained distribution. Probability statistics apply to an unknown population. The reference point in this instance is an unknown, but in descriptive statistics the reference point is known. One never knows the true measure of a population until it is measured. Probability statistics yield only a guiding range of probable error so that judgment defined in amount may be made with caution. The error, when an adequate random and representative sample is used, is small. In most instances, the amount of error is insignificant when compared to the accuracy requirements of the data needed for the solution of the problem. The standard error is the statistic of probability and this value is interpreted by use of the "t" test and "levels of confidence." For example: given $M = 50$, standard deviation = 5, and a standard error of 2; on the "one percent level" of confidence (2.58), it may be judged that

² See Larson and Yocom, *Measurement and Evaluation in Physical, Health and Recreation Education*, pp. 356-57.

means will vary from 45 to 55 ($50 = 2.58 \times 2 = 55.16$ and 44.84), or it is judged that the probability is only one mean out of 100 that will fall outside this range if other samples are drawn from this population (one percent is one chance in 100).

10. *Graphic method.* Graphic methods may be used as a measure of reference or for the presentation of calculated data. In the former, graphic methods are used for analysis as well as pictorial presentation. Graphic methods are applied according to types of data to be described, compared, and analyzed; namely, dichotomous, categorical or continuous data. The graphic methods applied to categorical data (also dichotomous) are circle graphs, pie graphs, sector graphs, pictograms, graphic tables, and graphic maps. The graphic method applied to continuous data are the frequency polygon, ogive curve, time trend curves, and learning curves. Graphic methods may be used also in comparative statistics by direct comparisons of graphs, tables, etc.

Comparative statistics are used when two or more groups are to be compared. Analytical statistics are used when more detailed statistic analysis is desired about one group or two or more groups of scores. These statistics are:

1. *Probability statistics.* These statistics are those presented under *Reliability* (number 9—descriptive statistics). They deal with the probability of statistical values, obtained from a representative sample of a population. It is a true value for the full population and the amount of variability expected from other samples of the same population. The only difference is in the application of statistical tests. These are selected to determine whether the difference between or among groups is significant. If the difference between two means, for example, is found on the "one percent level" of confidence, it may be considered real, as there is only one chance in 100 that the difference is a *chance difference*. Variance analysis is used when two or more groups are compared. The standard error of estimate is also the probability statistic indicating the range of chance error operating when a prediction is made. For two groups, the "t" test and Chi-Square Tests are applied.

2. *Serial correlations.* These are the bi-serial, tri-serial, quadra-serial, quinti-serial. Relationships may be determined when one variable is categorical and the other continuous. For example, the bi-serial correlation may be determined between sex (male-female) and physical fitness (measured in continuous units).

3. *Tetrachoric correlation.* The tetrachoric correlation is used when both variables are dichotomous. An example is the correlation of two pass-fail tests.

4. *Qualitative-quantitative correlation.* This correlation is used when one series of scores is in the form of ratings (e.g., A,B,C,D,E) and in the other the scores are continuous (scores on a physical fitness test may

be in continuous units—e.g., 0 to 100). The contingency coefficient (e) is also used in correlation when data are in categories.

5. *Product-moment correlation.* This is a correlation between two continuous series of scores—age and weight, for example. These correlations range, as in all correlation, from .0 (no relationship) to 1.00 (perfect relationship). The product-moment correlation may be linear (a straight line relationship between the two variables) or curvilinear (curved-line relationship). Which relationship exists must be determined before correlation is used.

6. *Partial correlation.* Partial correlation is used when one wishes to remove common influences from a correlation coefficient. For example, suppose muscular strength and motor ability are found to correlate .85; suppose also that age correlates .40 with motor ability and .45 with strength. The age influence, therefore, is found in the .85 correlation, and may be removed by partial correlation. This correlation will be reduced.

7. *Regression and prediction.* It is possible to construct a weighted equation that may be used for prediction purposes. It has been found, for example, that by statistically “weighting” physiological variables, it is possible to predict the time for a 440 yard swim with an error of about 7 percent. When relationships are high (.85 and above) it is desirable to construct regression equations.

8. *Multiple correlation.* When the cumulative influence of several variables is desired in relationship with one variable, multiple correlation is used. For example, chinning, dipping, and vertical jump variables are found to correlate .85 with a motor ability criterion (single score).

9. *Causal analysis.* This is an advanced method of correlation analysis to determine the *amount* of cause-effect relationship existing between two variables. Both direct and indirect influences may be determined.

10. *Factor analysis.* This is applied as an aid in explaining a complex set of interrelationships. The table of interrelations is reduced to a set of factors that explain the interrelationships. If the relationships are perfect, the table of interrelations is reduced to one factor; if the relationships are all zero, there are as many factors as there are variables.

ANALYSIS DESIGNS IN RESEARCH

Planning the solution for a problem resolves itself into the preparation of two major designs. Establishing the *nature* and *scope* of the problem is the first design. This includes a statement of the problem, statement of divisional parts (sub-problems), statements of delineation, statements of assumption, and the relationship of the problem to previous research. Such designing must come first in research planning. Consideration has been given (Chapter 8) to problem designing, therefore it will not be

included in this discussion other than the presentation of a point of relationship.

The second design which needs to be established before research may begin is the *analysis design*. This involves two major considerations: (1) the selection or construction of techniques or instruments needed in order to gain data for the solution of the problem, and (2) the plan for the analysis of data in order that all evidence inherent in the collected data may be effectively presented in order that *all* evidence is used in connection and as the basis for the interpretations and for drawing final conclusions. The first considerations on the selection or construction of techniques are presented in Chapter 10. Considerations are, therefore, directed to the designs for the analysis of collected data and considerations on interpretation.

One of the difficult questions asked by the researcher (particularly by the beginner) is, "What should I do with all the data collected?" The problem is one of proper analysis. The types of data resulting from research have been presented in Figures 18 and 20. Tools for statistical analysis and narrative analysis of data have also been presented (Figure 20). It is for the purpose of correlating and integrating this information that the following designs on analysis are presented. These are the possible data resulting from research, and the designs on analysis are plans that may be used for the most effective results. The tools used, in this connection, are statistical and narrative.

1. *Design for qualitative identification.* This research results in the determination of the composition of an educational problem. It includes the problems about the nature of the nine classified functions of health, physical, and recreation education (Chapter 9, Figure 17). For example: What is the composition of a philosophy of American recreation? What elements are included in the organic objectives of physical education? (See pages 264, 265 for other examples.) The results of this research are summarized by simply indicating in narrative statements the elements constituting the solution of the problem, and those that are not a part of the problem.

2. *Design for qualitative description.* Research, in this instance, is designed to establish the characteristics of a particular educational phenomenon. Take, for example, the physiological characteristics of a mile runner. Narrative statements of physiology are used to describe the various characteristics. This might be the next step after qualitative identification, or it might involve certain selected physiological variables. The problems of qualitative description also include all nine functions of health, physical, and recreation education (Chapter 9, Figure 17). The tools for analysis are facts and theoretical knowledge of the basic field of knowledge involved in description. A physiologist represents the qualification for the example herein cited.

3. *Design for quantitative description.* These data may be described by use of narrative statements that express absolute amount or relative quantitative values of each variable.³ The terms used will be represented either by the scoring scheme of the technique (excellent, very good, average, poor, and very poor; e.g., in a motor-ability test), or by terms that are descriptive of amount when results are summarized. Any variable may be described in amount. The following examples will illustrate the use of quantitative descriptive analysis:

Philosophy—criteria may be applied that will result in data expressing the relative worth of a program as excellent, average, or poor. *Objectives*—tests may be applied to a program with results indicating that the organic objectives are successfully achieved (according to an established standard), and the skills objectives are unsuccessfully achieved, etc. *Programs*—criteria may be used to demonstrate that the organic outcomes of football are high, but in golf they are low, etc. Such results and analysis are found in problems pertaining to all functions of health, physical, and recreation education (Chapter 9, Figure 17). Any term that denotes amount may be used as a tool (e.g., size—large and small; color—black or white, etc.).

4. *Design for quantitative comparison.* These data are also analyzed by use of descriptive quantitative terms, differing only from Design 3, in the use of terms that compare two or more groups of scores or individual scores. Such terms as larger, smaller, same, better, darker, lighter, etc. are used as analysis tools.⁴ Any term which has quantitative meaning and will differentiate two or more groups may be used as tools of analysis in this design. Educational problems solved by quantitative comparisons are found in all nine functions of health, physical, and recreation education (Chapter 9, Figure 17). Some examples are: *Philosophy*—comparing the effectiveness of two philosophies of recreation by applying evaluation criteria. Results will indicate the differences in the two philosophies. *Objectives*—comparing the accomplishment of the organic objective in two varying programs of physical education. Evaluation criteria may again be used as a tool and data summarized according to quantitative likenesses or differences. It is necessary, of course, to place some defined meaning to the terms used so that amount of differences may be more clearly established. For example, the organic outcomes of program 1 are superior to program 2. The definition of "superior," in quantitative terms, is advisable.

5. *Design for quantitative analysis.* Research, in this instance, is designed to establish the components of an educational problem with instruments applied that yield non-numerical data. Numerical data may be

³ For more detailed discussion on quantitative terminology see Chapter 6, Figures 4 and 5.

⁴ See Chapter 6, Figures 4 and 5, for more detail on terminology.

described by narrative statements, but this is not common; statistics are usually applied. For example, an analysis of the educational nature of a philosophy of recreation will result in the data that, as the result of analysis, will yield the educational composition of the philosophy. In this connection, valid educational criteria may be applied that can indicate the amount of each element found, using such terms as significant, moderate, and insignificant. An analysis of the leisure-time educational content of a school program, by use of criteria, is another example. Again, problems in the nine classified functions (Chapter 9) of health, physical, and recreation education may be solved by this analysis design; i.e., data analyzed in this manner will yield the solution.

6. *Design for description of dichotomous data.* Applied techniques that yield dichotomous data (yes-no, male-female, etc.) may be classified by simply indicating the number of frequencies in each category, the percentage in each category, or by the use of graphic methods. These data are numerical and therefore may be summarized by counting. Graphic methods may be used to show the number of frequencies in each category by applying the bar graph. An example of research resulting in dichotomous data is the testing of health concepts on the true and false basis. All sex research must treat the sex variable on this basis.

7. *Design for comparisons of dichotomous data.* Dichotomous data may be compared using several statistical tools (sex results compared with concepts on health; true and false). The differences may be expressed in number, percentage, or by graphic methods. For example, if 20 or 10 percent more males than females judge health concepts incorrectly, graphic methods may superimpose bar graphs to show differences in knowledge of male and female. Further analysis may be expressed in correlation (tetrachoric) that will indicate the relationship of sex (male-female) and true-false ratings on health concepts. Bi-serial correlation may be used if a second variable is found to be continuous (weight in pounds, for example); sex may therefore be correlated with weight. In order to determine the amount of chance operations in the statistical data, Chi-square tests may be applied; these are probability statistics that indicate how much confidence may be placed in the differences as being *real* or due largely or entirely to chance.

8. *Design for analysis of dichotomous data.* This analysis design applies the more advanced statistics for the purposes of more complete analysis of the data. Partial correlation may be applied to eliminate undesirable influences found in a correlation coefficient; regression, when it is desired to "weight" the influences of independent variable or variables. Prediction is of little significance when variables are in two categories. Multiple correlation is applied when it is desired to determine the net influence of each variable or the significance of several variables with one.

Causal analysis is applied to determine relationships of cause and effect. Factor analysis is used to establish the factors found in a total set of inter-correlations. Standard error of estimate indicates the prediction accuracy of a correlation. These statistics are also described briefly in the statistics section of this chapter. Reference should also be made to the reference already cited in the statistics section for aids to correlation.⁵

Advanced statistics are applied when interrelationships and the worth of data in prediction are desired. One needs to be cautious in the application of advanced statistics as they are used only on two-fold measures of each variable; these are very broad categories and are limited in application.

9. *Design for description of categorical data.* These data are those found in two or more categories but are usually less than ten; ratings are the most common data, in this instance. For statistical description, the statistics which may be applied are presented in Figure 20. These may be the number or percentage of frequencies in each category, average statistics (mean, median, or mode), variability (standard deviation or percentiles, etc.), and graphic methods. The statistics will describe the frequencies according to the central massing, as well as variability or the spread in the frequencies. The normal curve statistic should be applied to test the normality of the data and reliability statistics to determine the extent of the influence of chance errors. When it is desired to combine scores, it is necessary that they be translated to standard scores. For descriptive purposes, these statistics will adequately present the categorical frequencies.

10. *Design for comparison of categorical data.* Data may be compared by differences in numbers of frequencies and percentages in each of the categories. These statistics may also be presented graphically. Correlation methods that may be used are the contingency correlation and the qualitative-quantitative (with continuous data) correlation. Relationships between and among variables may, therefore, be presented. The probability statistics are the "t" test and the Chi-square tests. These statistics indicate the extent of confidence that may be placed in the calculated differences in the variables. Comparisons of categorical data may be made on the statistical basis with both dichotomous and continuous variables.

11. *Design for analysis of categorical data.* These statistics are the same as those applied to the dichotomous data (Figure 20), except that variance analysis may be applied to the analysis of differences in three or more groups to determine the extent of chance influences on the differences. Prediction may also be made using regression equations. Partial correlation, multiple correlation, causal analysis, and factor analysis are based

⁵ Larson and Yocom, *Measurement and Evaluation in Physical, Health and Recreation Education*, pp. 356-57.

on the correlation coefficient, therefore these systems of analysis may be applied to all data when correlations are possible. The standard error of estimate indicates the prediction accuracy.

12. *Design for the description of continuous data.* The most effective problem solutions usually result when continuous data represent each variable; this is a highest level of refinement. Statistical methods for description are presented in Figure 20: the frequency distribution (the starting point of systematic tabulation of frequencies), central tendency (mean, median, and mode), variability (standard deviation and percentiles, etc.), normal curve (for percentage area analysis and test for normality), reliability (determine magnitude of chance errors), standard scores (when scores are to be combined), and rank order description. Selection of statistics from these will yield a description of the frequencies in the various categories. Measures of central tendency and variability are the basic descriptive statistics.

13. *Design for comparison of continuous data.* Correlation is the basic statistic used in comparison for the determination of the degree of relationship; however, before applying correlation it is necessary to determine whether the relationship is linear or curvilinear. Probability statistics which may be applied are either the Chi-square test or the "t" test. These statistics will indicate the extent of the chance operation in the calculated differences in the groups. Graphic methods may also be used to present calculative differences.

14. *Design for analysis of continuous data.* These statistics are the same as in Design 11. The basis for analysis, with the exception of variance analysis, is the correlation coefficient. The coefficient has a higher level of significance when calculated with continuous data since a high level of refinement in the measurement of the variable is obtained.

In summary, fourteen designs on analysis of data are possible in educational research. The extent of the analysis in each is determined by the extent of the treatment needed to supply the solution to the problem. Determining factors require factor analysis. In describing frequencies only a measure of central tendency (mean) and variability (standard deviation) is needed. Notations on treatment have been briefly made and the possible tools are indicated. The application of the tools will come from knowledge of statistics and research. References may be made to standard texts in this connection.⁶

PRINCIPLES ON THE ANALYSIS OF DATA

Types of data resulting from research, the classification and relationships with procedures on analysis, and designs for analysis of research data have

⁶ AAHPER, *Research Methods Applied to Health, Physical Education and Recreation*. Washington, D.C.: AAHPER, 1949.

been presented. These are guides for the analysis of data resulting from research. It is also important in problem solving to decide what types of data *are needed* for an adequate solution of a problem and the *requirements of the data* for use in educational research. The following principles are presented as guides, to serve as a basis for decisions on the factual requirements for problem solving.

PRINCIPLE 1: *When data are averaged the characteristics of the individual score are lost as the average is descriptive of a group of scores.*

This is a basic principle on the analysis of data. If it is desired to preserve the characteristics of each individual, as represented by a record or score, it is not possible to do so when scores are grouped into distributions with averages calculated. This is particularly important when several variables are used in research. For example, the mean scores of a group of individuals in physical fitness and motor ability do not show the various correlations that exist for each individual—it is *group* described.

PRINCIPLE 2: *When it is desired that an individual score be described, it is desirable that group statistics be calculated (averages, variability, and correlation, particularly) in order that the position of the individual score in terms of a group may be determined.*

It would seem that the utilization of both principles 1 and 2 in the analysis of data represents an ideal. The individual characteristics are preserved, on the one hand, and, in addition, group characteristics are determined that may be used to describe the individual score more adequately.

PRINCIPLE 3: *The relationships (correlation) calculated between test scores represent an average relationship of the total series of scores. Those relationships will vary on different segments of the scoring range.*

If one examines a scatterdiagram (plot of two series of scores to be correlated by product-moment method) it will be noted that the relationships will vary, in many instances, according to the segment of the scoring range. For example, the correlation may be higher on the upper and lower part of the range than in the center. The correlation coefficient is an average of these two extremes and other varying relationships that exist in a full range of compared scores. If it is desired to make an average relationship as descriptive as possible of all scores, the scatterdiagram should be examined to identify any major variations in plotted relationship. If major variations exist, the range may be split for correlational purposes. Individual relationships must be interpreted with caution, in all instances, when the correlational coefficient is applied. The average is not descriptive of the individual ratios.

PRINCIPLE 4: *Statistics should not be used, for the analysis of data, unless all assumptions that are the basis for calculation are met in the research data.*

All statistics are constructed on assumptions that represent conditions

to be met by the data to be analyzed by statistics. For example, standard deviation assumes normality of the distribution; if this condition is not met by the data, the results are erroneous to the degree of unmet assumptions. Statistics should not be applied unless the conditions or assumptions are met, and each statistic should be applied according to the purpose it serves. It must be clearly understood what a statistic can do.

PRINCIPLE 5: *Tools for the analysis of research data (qualitative and quantitative) are used as aids in the interpretation of results and do not substitute for the knowledge necessary in the field of investigation.*

Research tools cannot substitute for knowledge about the field of investigation. It is necessary to determine what use may be made of tools or how the tools may analyze data for a more effective solution. Unless one has knowledge about the field of investigation this application of tools cannot be made.

PRINCIPLE 6: *Probability analysis deals with unknowns; unless the bases for such analysis are valid, the analysis and predictions should not be made.*

It is necessary that a factual basis for prediction be established before probability analysis is used. The factual basis consists of a sample representative of all conditions that are a part of the prediction and of the population used in the investigation. The sample must consist also of sufficient number of scores so that the standard error may be reduced to such size that it is not a significant error. Errors of measurement must also be eliminated. The conditions in the population must also remain the same as the sample group in order that probability analysis may be made.

PRINCIPLE 7: *The type of data needed for an adequate solution to a problem must be determined before analysis begins.*

Fourteen analysis designs of research data have been presented. Which of these designs represent the data requirements for the solution of a problem must be established before research begins. For example, dichotomous data on a physical fitness test (satisfactory-unsatisfactory) usually is not adequate for the solution of a problem dealing with physical fitness. In this instance it would be desirable to score the test on a continuous basis so that a higher degree of differentiation in fitness is gained. Whether qualitative or quantitative data are desired must also be determined; the test of the proper selection is the adequacy of the solution of the problem.

PRINCIPLE 8: *The proper relationship must exist between the data resulting from research and the tools used for analysis.*

Tools used for the analysis of data must not go beyond the standard of refinement set by the research data. Dichotomous data, for example, must always be considered as data in two categories; therefore, refinement by statistical analysis must not go beyond these divisions. When bi-serial correlation (two-fold vs. continuous) is applied, the correlation must also be

interpreted as representing a relationship that, on one hand, is found in only two categories. This principle applies to all data, both qualitative and quantitative. Refinement of data must come when instruments for research are selected or constructed since refinement by analysis is limited to the degree of refinement found in the data.

PRINCIPLE 9: *In some instances it is desirable to scale the results of research so that relative stages of difficulty may be established within a given range of scores.*

Scaled scores are those that have been assigned statistical weights representing relative stages of difficulty, quality, or quantity within a given range of scores. Scaling of scores may be prepared on a linear or curvilinear basis. Linear scaling, for example, could begin by assigning a value of 0 to -3 sigma, with a 5 point increase in scores for each .5 sigma up to $+3$ sigma. These will yield scores scaled from 0 to 65. A curvilinear scale could be arranged so that score values will be small at the lower end of the scale, with progressively larger increase at the upper end of the scale. For example, it might be considered advisable to scale the high jump scores from -3 sigma to the mean by use of 30 points and from the mean to $+3$ sigma 70 points. Such scaling follows a philosophy that this performance is more difficult at the upper levels of performance; therefore more credit should be given. Regardless of the system of scaling used, it must have justification in philosophy and educational data. Statistical methods of scaling may be found in the Larson-Yocom text previously cited.

PRINCIPLE 10: *It is sometimes desirable to "weight" arbitrarily or statistically the items constituting the solution to a problem.*

Weighting of items indicates the relative importance of each. For example, in the process of identifying the qualities of leadership for public recreation, it may be desirable to weight each quality so that relative importance may be demonstrated on a numerical basis. Such weighting may be arbitrary (but, of course, it must be consistent with research facts) or it may be statistical. The *beta* weights in a regression equation are determined by statistics and indicate the strength of each variable in the process of prediction. In applying the sociogram, for example, arbitrary weights may be assigned from those with the highest level of acceptance to those with the lowest level of acceptance. These scores may be assigned according to the number of categories desired.

INTERPRETATION OF DATA

After the results of research have been adequately analyzed, it next becomes necessary to interpret the results in the form of statements of conclusions. From conclusions generalizations may be made to the extent possible by the data. Discussion on generalizations is found in Chapter 9;

therefore, considerations will be given to the interpretation of data or the preparation of statements of conclusion. These considerations are:

The interpretation of data in terms of statements of conclusion should always be fully supported by research data, and the interpretation should include all conclusions inherent in the summarized data. One should not under-interpret nor over-interpret research data. So that all conclusions inherent in the data may be identified, it is necessary to review carefully research data in terms of all factors constituting the framework of the investigation. It is then necessary to prepare a statement concerning each element to the extent that it is supported by facts. For example, in the problem cited on the program of physical education (Figure 19), statements of conclusion should be presented on the factors of influence (economics, philosophy, etc.), the educative components (selection, evaluation, and adaptation of activities), and the protective components (classification, safety, etc.). Because these elements constitute the elements needed for the solution of the problems, it is then necessary that concluding statements be made, to the limits of fact, on each element (Chapter 8, Problem Scope).

It is always advisable, when results of research are interpreted, to guard against unwarranted conclusions. Some guides are:

1. Research should be conducted on assumptions demonstrated to be valid. If any doubt exists about the assumptions underlying research, they should be tested before research begins. For example, it may be an inadequate basis for conclusions if it is assumed that a given philosophy of education is most effective in a given situation, and research has been designed for a description of this philosophy.

2. It is always advisable to draw conclusions according to the scope of sampling used in the investigation. Too few data may lead to erroneous results. Data which are not representative of the population of the investigation will also lead to erroneous results (Chapter 11).

3. Interpretation of a part of the facts for the full facts will not yield valid statements of conclusion. For example, using the quality of the athletic program as the basis for the interpretation of the quality of the physical education program will not serve as valid data for statements of conclusion.

4. It is not desirable to prepare statements of conclusion from analogous instances. For example, applying the results of animal physiology to people should always be made with caution.

5. Statements of conclusion should have internal consistency (consistent with all similar statements) and should be in agreement with external criteria demonstrated to be valid. For example, oxygen consumption found to be correlated with endurance running should be consistent with oxygen data related to similar endurance activities.

6. Statements of conclusion should include not only positive evidence

but also all negative evidence found in the process of the investigation. If a phenomenon is successful in all instances except one, this negative instance must also be included as part of the evidence and conclusion.

7. Conditions must be similar in order that results may be considered comparable. For results to be considered similar, all factors related to the investigation must be similar. Comparing two methods of teaching for health in different institutions, without equalizing such factors as intelligence, leadership qualifications, environmental conditions, can only lead to erroneous results on the conclusions resulting from comparisons.

8. The amount of unreliability of the instruments and the investigator must be a part of the consideration when statements of conclusion are presented. The reliability coefficient should serve as a guide when conclusions are prepared.

9. Statements of conclusions prepared on a positive or negative interpretation of gaps in data are in most instances invalid. For example, financial trends in units of five years should also be interpreted in these same units. What occurs within these intervals is unknown.

10. The amount of the validity of instruments used in research must be considered when statements of conclusion are prepared. No instrument has full validity; therefore the degree to which the instrument is invalid must be included in the statements of conclusion.

11. Statements of conclusion cannot be prepared beyond the limits of refinement dictated by resulting data. For example, if the body weight variable is correlated with motor ability and is found in two categories (above and below the mean weight), statements of conclusion must be qualified so that a relationship exists between being above and below average in weight and motor ability; a statement that assumes a relationship within those two groups is without fact.

It is always advisable, but in some instances not possible, to conduct research to verify original findings. Probability analysis may be used to interpret the full population on the basis of a sampling, but in all instances the final test is verification by continued research. If similar results are gained under comparable conditions, final conclusions may be made with greater confidence.

Relationships should never be interpreted as cause-effect unless the investigation is designed and facts gained to demonstrate such relationships. The network of cause-effect relationships is such a complex phenomenon that judging association as cause-effect will only lead to error. Causes may be direct or indirect, immediate or remote, single or multiple, partial or total, etc. Effects may be causes of a factor fundamental to the solution of the problem. Research, therefore, interpreted as cause-effect must have validity in content of the relationship, not mere association.

Statements of conclusion must always be written in light of errors usually found in investigations. Those errors are chance and systematic.

The statement concerning chance errors is presented in this chapter, page 273, under "Reliability." Systematic errors deal with errors in instruments and errors in the conduct of the investigation. These are of the same magnitude and in the same directions, so they may only be identified by comparing results with a standard. Such an example is the calibration of an instrument. Reviewing a questionnaire for completeness is another example, since essential information may be omitted. Failure to include essential items in a survey also will lead to systematic error. Systematic errors are not determined by reliability determinations.

Generalizing the results of research must be guided by the scope of the sample and the problem (Chapter 9). Drawing inferences beyond these limits for the full population will only yield invalid statements.

CHAPTER 12

Preparation of Reports

Usually associated with any problem-solving or research course is the requirement of an individual project or thesis. The preparation of this report in final form requires a thorough knowledge of proper writing skills, and is really a matter of basic attitudes and good writing habits on the part of the research student.

Chapters 8 through 11 have clearly outlined the formulation of the *design* of a problem, the *methodology* that may be employed in its solution, and the various research *techniques* and *procedures* that can be utilized in solving the problem and analyzing and interpreting the results.

This chapter is, therefore, concerned with some of the technical aspects of preparing the final manuscript. There are numerous standards for writing that the student may use for further information. A suggested group of references is contained in the Bibliography. All of the problems associated with writing the final report will not be presented, but the more common usages and technical elements will be discussed. Faculty advisors should be consulted when a question arises.

Fundamental to good writing are *thoroughness* and *accuracy*. The written report should give evidence of a sincere, original, and thorough piece of work. Accuracy is revealed most easily by the caliber of the footnotes, tables, charts, statistical computations, and factual content.

Neatness and *legibility* lend a great deal to the general appearance of the report or thesis. Naturally the typewriter is a valuable machine in the preparation of the report, since it assures legibility. Erasures should be kept to a minimum; otherwise the report will not be neat, and in many instances will not be acceptable to the sponsoring committee, individual advisor, or instructor.

Originality and *self-expression* should be evident in any written project or thesis.

Language structure or *grammar* should be technically correct. A notable weakness, often detected in students, is faulty composition. If a student's writing is inadequate, it would be well for him to take a course in expository writing in preparation for writing a thesis or report.

THE FORMAT

A thesis or report can usually be divided into three distinct parts. These are: (1) the *preliminary pages*, (2) the *main text of the report or thesis*, and (3) the *supplementary pages*.

The original outline of the thesis or report may serve as a guide for the format to be followed in preparing the final report (see Chapter 8).

Suggested Chapter or Section Outline for Final Report or Thesis

Preliminary Material.

Title page

Preface

Table of Contents

List of tables, graphs, or charts

Chapter I. Introduction. This should include the following:

Purpose

Statement of problem and sub-problem

Delimitations of the study

Definition of terms

Basic assumptions or hypotheses

Significance of the problem

Chapter II. Historical background of the study. This should include all pertinent source material.

Chapter III. Procedure. Step by step methods used in solving the problem.

Chapter IV. Results. The reporting of the results is often divided into several chapters to coincide more or less with the sub-problems, or into fundamental aspects of the study. This divides the material into the major components of the research project. Such procedure is particularly desirable in lengthy studies involving the collection and analysis of large amounts of data.

Chapter V. Summary and conclusions.

Chapter VI. Implications of the findings or discussion or recommendations.

Bibliography.

Appendix.

There can be several variations to the suggested outline, but basically it provides the framework by which a thesis or final report may be written. Further explanation of the sections contained in the chapter outline is contained in the pages that follow.

Title Page. Once the research topic has been selected a title must be chosen. This often is one of the last things accomplished, since the

title is a condensation of the statement of the problem. For example, a statement of a research problem may be, "A Survey of the Factors Which Tend to Influence the Safe Conduct of Physical Education Programs in High Schools." This can be reduced in the title to something like this: "A Study of Safety in High School Physical Education Programs." Sometimes it is desirable to include a sub-title that gives more definite information pertaining to the scope, aim, or content of the thesis or report. The title should appear on a separate page called the "title page." Actually there are two criteria that must be met by any title. The first is that the title must be descriptive of content, and the second is that it must be descriptive of the method employed. In addition to the title, the name of the author, year, and course requirements are given. A sample title page is illustrated below.

Preface. The author may express his acknowledgment of assistance rendered to him in the course of the research in the preface. He may also indicate his personal interest in the research topic.

A Study of Safety in High
School Physical Education Programs

John Doe

Submitted in partial fulfillment of
the requirements for the degree of
Master of Arts in the School of Education
of New York University

1953

FIGURE 21. Illustration of a Title Page.

Table of Contents. This should include all chapter headings and major sub-headings contained in the manuscript. An example of a typical table of contents follows:

TABLE OF CONTENTS	
PREFACE	i
TABLE OF CONTENTS	ii
Chapter	Page
I. INTRODUCTION	1
Purpose	
Statement of Problem	
Definition of Terms	
Basic Assumptions	
Basic Hypotheses	
Delimitations of the Study	
II. HISTORICAL BACKGROUND	4
III. PROCEDURE	11
Data Needed	
Source of Data	
Method of Collecting Data	
Treatment of Data	
IV. SOCIOLOGICAL FACTORS ASSOCIATED WITH PROGRAM PLANNING	19
V. DISTRIBUTION OF ACTIVITIES BY AGE	31
LIST OF TABLES	iii

Tables are listed separately from the table of contents. They are numbered consecutively from the first table to the last. A sample list follows:

LIST OF TABLES		
Number	Title	Page
I.	Distribution of Activities by Age	34
II.	Results of Chinning Test	62

LIST OF DIAGRAMS iv

Diagrams are listed separately from tables. They are numbered consecutively from the first to the last with Arabic numerals.

LIST OF DIAGRAMS		
Number	Title	Page
1.	Title Page	4
2.	Department Lines of Organization	10
LIST OF FIGURES		v

Figures are also listed separately and are numbered consecutively starting with number 1. Arabic numerals are used.

LIST OF FIGURES

Number	Title	Page
1.	Reader's Guide to Recreation Literature	20
2.	Education Index (Health Education)	21

Chapter I. Introduction. This chapter is often titled "Purpose of Study," or "Introduction to Study," or "The Problem." It follows rather closely the material contained in the outline of the study. Whereas the material in the outline refers to what is proposed, the same material when referred to in the final manuscript is presented by using the past tense. For example, in the outline the investigator indicates that he *proposes* to do certain things, and in the final write-up he states that the following procedures *were* followed. The past tense refers only to procedure. The findings of the investigation are always written in the present tense, on the premise that the findings are still applicable.

In the final report of short projects or theses the material indicated in the outline for inclusion in chapters II and III may well be incorporated in the first chapter by using appropriate sub-headings.

The contents of the first chapter include the purpose of the study, a statement of the problems and sub-problems, definition of terms, basic assumptions and hypotheses, and delimitations. This chapter is written in the present tense. If procedures are included in this chapter they should be described in the past tense.

Chapter II. Historical background of the study. In this chapter a careful summary of related research, particularly that leading up to the present study, should be presented. All past research referred to should be documented, including books, periodicals, theses, or any other written material. Records of verbal statements from interviews may also be included.

Chapter III. Procedure. This is usually the most important phase of the outline since it determines the *eventual results of the research*. The procedure in the final write-up of the thesis or report should *receive equal treatment, and should be presented in detail*. All the steps followed in the collection of data should be carefully recorded. A good principle to follow is, "The procedure should be set forth so clearly that anyone could duplicate the study and come out with the same results." Samples of forms, questionnaires, or check lists used in the collection of data should be placed in the appendix, and referred to in the chapter on procedure. The procedure is described in the past tense.

The basic steps that need to be taken in setting forth the procedure

for the solution of any problem are: (1) identification of *data needed* to solve problem; (2) locating *sources* of data; (3) determination of *method of collecting* data and techniques to be employed; and (4) type of *treatment* of data.

An excellent approach to follow is to place these four steps on a large work sheet, each heading up a column (see Chapter 8):

DATA NEEDED	SOURCES	METHOD OF COLLECTING DATA	TREATMENT OF DATA
A list of all opportunities for recreation according to each agency.			
<i>Sub-Problem 1:</i> What are the recreation opportunities present in Community X?	schools churches park department social agencies people	library records, recorded inter-views with school supt., etc. questionnaire	tables, charts, verbal statements
<i>Sub-Problem 2:</i>			
<i>Sub-Problem 3:</i>			

The chart should be filled in as information is gathered. Then the actual procedure is written in essay form in the outline. This technique will help the individual to think through a problem and its probable solution. Usually, this is accomplished during the process of planning the design for the solution of the problem (Chapter 8). If so, reference can be made to the outline. Sometimes it is well to have an individual chart for outlining procedure for each sub-problem. This will also help establish lines of demarcation between sub-problems. When the data needed are different, as well as the methods of collecting these data, it is reasonable to assume that they fall logically into different sub-problems.

Chapter IV. Results. It is customary to use a more descriptive title for this chapter than merely the word "results." This will hold true particularly when more than one chapter is required to record, analyze, and interpret the data. It is essential that a careful analysis of the data be made; mere recording of figures is a clerical job that does not properly interpret the data. Data are recorded or summarized by the use of *derived tables, graphs, statistical computation, or verbal statements*; frequently all four methods are used. Tables should never be used alone and should be incidental to written statements. Complete narrative analysis should be used to explain the process and tables and graphs should have reference only for details on supporting facts. It is always well to make comparisons with preceding studies when interpreting and recording results.

Chapter V. Summary and conclusions. In this chapter the findings are summarized in very specific terms and all aspects of the study should be included in the summary. It is essential for conclusions that: (1) *the findings are closely related to the purpose and specific problems as originally*

stated, (2) that they are substantiated by the data as analyzed, and (3) that they represent a thorough analysis of these data.

When recommendations have been indicated as a part of the purpose of the study, they should be included in this chapter or incorporated into a separate chapter, which would normally follow the chapter on summary and conclusions.

Chapter VI. Implications of the findings or discussion. The investigator has the privilege to deal with such factors as (1) application of the findings to various specific and related fields; (2) by-products of the research; (3) recommendation on the need of additional research in the area studied; and (4) recommendation for the improvement of procedures utilized in the study as a guide to future research workers.

Bibliography. A selected bibliography should be appended to the thesis or report. It should be introduced by a title page with the word BIBLIOGRAPHY in the center of the page. There are several ways of preparing the bibliography. The material may be separated by: (1) the major divisions of the subject; (2) whether they are primary or secondary sources; (3) "Books" and "Periodicals"; and (4) treating the material as a whole. The bibliographical items should be alphabetically arranged by the author's name.

It is not essential to annotate the references, but it is helpful to future research workers if a statement of evaluation is contained with each reference.

Note that in listing books the book title is underlined, and in listing articles from periodicals the name of the periodical is underlined.

Appendix. The appendix is introduced in the same manner as the bibliography with a title page containing APPENDIX in the middle of the page. Materials such as questionnaires, survey forms, maps, large amounts of raw data, and copies of letters are usually found in the appendix.

The numbering of pages in the appendix is a continuation of the text. When reference is made in the text to material contained in the appendix it should be referred to by the statement "See the Appendix, pp. 323-335."

Headings. Each chapter has a title or heading. Usually several subheadings are required, some of which represent specific subdivisions of the chapter. Subordinate headings are indicated by underlining and indentation. The following form is recommended:

TITLE

Main heading (left margin, each word underlined)

First subhead (center, solid underline)

Second subhead (left margin, no underlining)

Third subhead (center, no underlining)

Fourth subhead—Note indentation and writing following immediately after the fourth subhead.

Triple space between the end of a paragraph and the beginning of the next heading. Numbers or letters should not be used except when listing a column of items.

A common error is to run two headings together. There should always be some statement regarding the topic contained in the heading that will also serve as an introduction to the next subhead.

References and the Use of Citations

When specific reference is made to other printed sources it should be cited in the appropriate place in the text and the complete reference listed in a footnote. If reference is cited in the bibliography, only a partial citation is needed as a footnote (as noted below).

Arabic numbers are used to indicate citations. They should be placed immediately following the author's name if it appears in the text, or at some appropriate place in the sentence referring to the topic. It does not have to be a direct quotation; it can be a paraphrase or indirect quotation. The number is actually placed a half space above the line (see sample below).

There are two ways of handling citations: (1) number all citations consecutively from the start of the chapter to the end, or (2) number them consecutively on each page, starting with one at the top of each page. The latter method is recommended. It affords the writer the opportunity to add or subtract citations without the necessity of changing the citation numbers on other pages.

The actual reference should be placed at the bottom of the page. In preliminary drafts of reports or theses the reference can be placed in the text on the line immediately following the citation as thus: as indicated by Good, Barr and Scates.¹

¹ Good, C. V., Barr, A. S., Scates, D. C., *The Methodology of Educational Research*. New York: D. Appleton-Century Company, 1936, p. 882.

This form is used when there is no bibliography at the end of the report. If there is a bibliography that contains the reference it is sufficient to record the reference in the text as follows:

¹ Good, C. V., Barr, A. S., Scates, D. C., *The Methodology of Educational Research*, p. 67.

By using this system in the early stages it is much easier to determine the amount of space required at the bottom of the page. All the typist will have to do is to place all text material at the end of the page, then go back and list the references consecutively. There will be just the correct amount of space remaining to accommodate the references.

The method of listing references to periodical literature is different from that for books. The following form is recommended:

¹ J. B. Nash, "A Philosophy of Recreation in America," *Journal of Educational Sociology*, XXI No. 5, (January, 1948), p. 257.

In citing periodicals the initials of the author precede the last name. In citing books, the last name comes first.

References at the bottom of the page are separated from the text material by a triple space. References should be single spaced with a slight indentation of the second and third lines.

Numerous abbreviations may be used to save space and time when the same reference is referred to more than once in the text. Some of the more common abbreviations are:

Ibid. When two references follow consecutively and are made to the same source, the abbreviation *ibid.* may be used. The specific page should be indicated:

² *Ibid.*, p. 259.

The term *ibid.* is derived from the Latin word *ibidem*, which means "in the same place."

Loc. cit. This abbreviation is used quite similarly to *ibid.* The distinguishing feature is that when *loc. cit.* is used, the two citations refer to the same page of the reference; hence, no page number is needed. The *loc. cit.* which is derived from the Latin word *loco citato*, meaning "in the place cited," appears below the original reference in this manner:

² *Loc. cit.*

Op. cit. This term is derived from the Latin words *opere citato*, which mean "in the volume previously quoted." It is used when there are other references between the original one cited and the present reference. The author's last name precedes the abbreviation:

⁴ Nash, *op. cit.*, p. 261.

The abbreviations listed should not be used when referring to sources contained in preceding chapters.

It should be recognized that there are other standard rules that are used in other fields, such as medicine, law, and engineering. It is best for the student using these sources to adhere to the standards set by those fields.

Direct Quotations and Paraphrases

Direct quotations from other authors are often desirable. The student should be sure that the exact words and punctuation are followed. If only a part of a sentence is quoted, the material omitted should be indicated by a series of dots: (. . . .).

When the quotation is only one sentence long, the quote should appear in the regular lines of the text with quotation marks around it. When the quotation involves a paragraph or more, it should be indented from the main body of the text about one-half inch and single spaced. No quotation marks are required when the material quoted is indented.

Paraphrases are used when it is desired to condense the material referred to and direct quotations are not used, but the general meaning of the material is retained. No quotation marks are used, but a citation located appropriately in the paraphrase (usually at the end of the thought) should be listed.

When a common phrase such as "don't give up the ship" is given, quotation marks should be used without any specific citation and reference. The same rule applies to Latin or foreign phrases commonly used.

It should be kept in mind that when too many quotations are used the impression may be gained by the reader that there is little originality to the work.

Tables, Diagrams, Charts, Plates, Maps and Figures

The use of tables, charts, diagrams, plates, maps, and figures is highly recommended; they help describe and illustrate results. In most instances they are a part of the text, although some may be contained in the appendix. This is determined by the relationship of the data to specific text material. Careful spacing of tables, diagrams, and other illustrative material in the text is essential. They should not be grouped too close together. They should always follow the text discussion, as near to the presentation as is advisable for effective writing.

An important rule to keep in mind regarding the use of this kind of material is that the mere inclusion of a chart or table is not sufficient to provide clear interpretation to the reader. *A clear explanation and interpretation of the data contained in the tables, diagrams, charts, plates, maps, and figures must be made in the text.* No table or figure should ever stand alone.

TABLE VIII
Results of Chinning Ability for Tenth and
Eleventh Grade Boys

Chinning in units of one	10	Grades	11
11	1		1
10			2
9	1		3
8	2		4
7	3		5
6	4		7
5	5		4
4	7		2
3	4		1
2	3		
1	0		1
0	2		1
N = 32		N = 31	

FIGURE 22. Illustration of a Table.

Tables represent a "compilation of numerical data in an orderly arrangement of rows and columns."¹ They should be numbered with Roman numerals consecutively throughout the text. A complete "List of Tables" should be contained in the preliminary pages of the report or thesis. The following form is recommended:

The title of the table should be centered at the top of the table with the first letter in each word capitalized. Reference to tables should be introduced in the text by a statement such as, "The results of chinning ability for tenth grade students are shown in Table VIII (p. 36)."

A COMPARISON OF CHINNING ABILITY OF TENTH
AND ELEVENTH GRADE BOYS

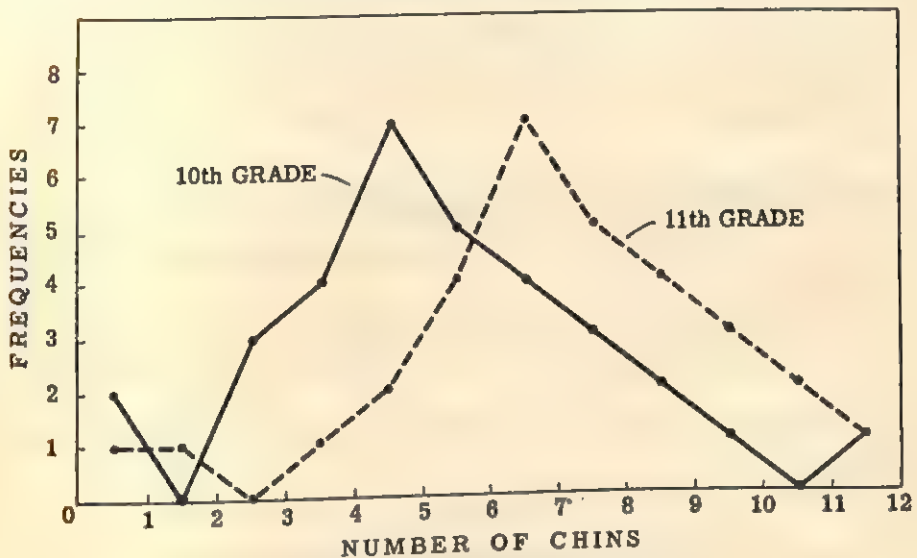


FIGURE 23. Illustration of a Diagram.

Diagrams, also referred to as *graphs*, are "graphic representations of data in such a way as to compare them as to size when they are placed upon a common scale or scales of measure."² All diagrams are numbered in Arabic figures *placed below* the diagrams. A title indicating the content of the diagram should follow the Arabic number.

Diagrams or graphs are seldom used alone; a table containing the data from which the graph was constructed should accompany the graph, and the table should always precede the graph. If the graph takes a whole page, the table should be located on the preceding page. Fold-in graphs may be used if the graph is too large to be accommodated on one page.

In making a graph it is usually best to make it two or three times larger

¹ *Standards for Written Work*, New York University Book Store, 1947, p. 21.

² *Loc. cit.*

than the final size desired. The size can be reduced in the *photostating* process to the size required. In this reducing process the illustration can be made clearer and many imperfections removed.

Figures are "representations of actual objects or of relationships, such as photographs, or drawings of pieces of apparatus, or organizational charts."³ Figures should be identified in the same manner as diagrams.

Plates are "full pages devoted to several tables, graphs, or figures, or a combination of them, and may be effectively used for condensation of material."⁴ They are listed in the same manner as diagrams.

Charts are similar to diagrams except that they are usually larger and frequently used for display purposes.

Maps are usually referred to as *Figures*. However, when there are a number of maps involved, they may be listed separately and given consecutive numbers. Maps cover geographic areas related to a study. An example would be in the conduct of a health survey in a community, and the area involved could be illustrated by a map.

DEVELOPMENT OF THE FINAL REPORT

A logical sequence to follow in the development of any research project or study is to:

1. Select the topic. Discuss the topic with faculty advisor.
2. Read about the subject, make notes, and start preparing a bibliography.
3. State the problem and sub-problems. Check these with the faculty advisor.
4. Determine the scope of the study. Prepare a statement of delimitations.
5. Prepare an outline of research in detail. Check with the faculty advisor and receive approval of the sponsoring committee, if one is involved.
6. Collect the data.
7. Record, analyze, and interpret the data.
8. Start the preparation of the final report.
 - a. *First draft.* Prepare it in longhand, draw charts and prepare figures and other descriptive material.
 - b. Check all work carefully. This is particularly essential in a study involving statistics.
 - c. *Second draft.* This is the first typed copy. Make an original and two copies. Triple space to facilitate making corrections.
 - d. Edit the material; then check it with the special advisor; make corrections. Check all technical matters such as footnotes, margins, spacing, typographical errors, bibliography, appendix, and spelling.

³ *Loc. cit.*

⁴ *Loc. cit.*

e. *Third draft.* This is the second typing. Make an original and three copies, double spaced. The report should be now in as good format as the researcher can make it.

f. Distribute a copy to designated advisors or the sponsoring committee. Discuss comments and suggestions made by the advisors individually with them. Make the necessary corrections and changes.

g. If the researcher is not thoroughly qualified in English usage, the manuscript should be given to an expert in this field for final editing.

h. *Final typing.* Secure the services of an experienced typist. Make the necessary number of copies; usually an original and two copies are required by the school. An extra copy should be made for retention by the researcher.

i. Proof-read the manuscript, place it in folders or covers, and hand it to the advisor.

j. In some schools, an abstract is required; it should be written after the report is complete.

SOME GENERAL GUIDES FOR PREPARING THE FINAL REPORT

1. It is important to become thoroughly familiar with the research topic before preparation of the outline begins. This will be reflected in the completeness of the section dealing with "related studies," sometimes called the "historical background of the study."

2. The outline is the blueprint for any research or study. It should be complete in every detail.

3. It is essential to establish that the scope of the study is within the capacity of the researcher, from the standpoint of both time and ability. Too many researchers are inclined to select problems that are too involved and too all-inclusive for ready development.

4. The researcher should be well grounded in fundamental research techniques and procedures.

5. Outlines should be prepared in easy form.

6. The research topic should be one in which the student is thoroughly interested.

7. The preparation of a thesis involves more detail and treatment than is required in a term paper or report.

8. The topic selected should have some significant relationship to education; it should make a contribution to an educational area. It is essential for the researcher to be able to state the relationship of his study to education.

9. A knowledge of statistical methods is a valuable asset to the researcher.

10. Certain specific courses in research including seminars and research methods should be taken by the student as preparation for doing research.
11. A card index should be kept of all reference material used in the study.
12. When pursuing a project involving the experimental method, the procedure should be tried out and corrected as needed.
13. The quality of writing is often considered an indication of scholarly attitude and level of attainment of the student.
14. The eventual reader of the report should be kept in mind at all times; nothing should be left to his imagination. The report should be made as interesting and as clear as possible.
15. Individual style is better than trying to copy the style of another author. The style employed usually reflects the personality of the writer.
16. Always make extra copies of material, even of that written in longhand. Keep the extra copy in a place other than the original. Single copies of manuscripts when lost may place the investigator in an embarrassing position.
17. Typing should be done on one side of the paper only.
18. The first copy of the final report should be on a good bond paper.
19. All titles and degrees of persons referred to in the manuscript should be omitted. The only place this is permissible is in the preface.
20. All numbers below 100 cited in the text should be written out.
21. Symbols or abbreviations should be used sparingly.
22. The editorial "we" should be avoided.
23. The report should not be verbose.
24. The writer should expect to re-write the report several times before it is in acceptable condition.
25. Charts and graphs should be prepared by a professional artist.
26. The first few chapters of the final report (involving essentially the material contained in the outline) may be started before the research is complete. This often helps to point up direction.
27. If considerable statistical computations are necessary the researcher would do well to secure the services of a professional testing or psychological laboratory.
28. A systematic plan should be followed whereby material collected is retained in a chapter file or folder.
29. Never appear to be apologetic in the final report. Make all statements positive and definite.
30. An index is not required unless the manuscript is in the form of a book which is to be published.

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CHAPTERS 3, 4, AND 5

Reference should be made to the Selected Bibliography for Functions for literature dealing with functions, current practices, and operational principles. It is also suggested that indexes (Chapter 7) be used in order that the current writings dealing with current practices and operational principles be identified.

Source material concerned with surveys, periodical articles on description of practices, some textbooks, and master's and doctorate resources seem to be the widest sources of information on current practices. Because educational practices are not apt to change rapidly, the practices cited in Chapter 5 may be used as a starting point for analysis and modification. Additions should then be made according to the dictates of the material available.

CHAPTER 6

Physical Education

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Appendix

ILLUSTRATIONS OF RESEARCH TECHNIQUES OR INSTRUMENTS

I. Questionnaire

A. *Check List Questionnaire*¹

The membership of this school's Health Council or Health Committee includes:
(Check participating members)

1. () Principal
2. () Vice-principal
3. () County health officer
4. () Physician representing local medical society
5. () Dentist representing local dental society
6. () Dental hygienist
7. () Nurse employed by County Health Unit
8. () Nurse employed by County Board of Education
9. () Health coordinator
10. () Attendance supervisor
11. () Visiting teacher
12. () Member of the guidance staff interested in health problems
13. () Psychologist
14. () Nutritionist
15. () School food-service director (lunchroom manager)
16. () Health education teacher
17. () Physical education teacher
18. () Corrective physical education teacher
19. () Biology or other science teacher
20. () Homemaking teacher
21. () Teacher of exceptional children
22. () Chief custodian
23. () Students representing student council or student body
24. () Health chairman or other representative of Parent-Teacher Association
25. () Representatives from official, voluntary or private community health organizations or agencies
26. () Others (Specify positions held)
27. () _____
28. () _____
29. () _____
30. _____ Total number on Health Council or Health Committee

B. *Ranking Questionnaire*²

¹ Smith, Sara Louise, Florida Cooperative School Health Service Study. (This is an item selected from the questionnaire.)

² Bucher, Charles A., "The Organization of a Veterans' Physical Education Program." *Research Quarterly*, March 1947, p. 65. (One selected item from questionnaire.)

What five games did you like best during your flight training? List in order of preference. (Scoring: 1st rank = 5 points, 2nd rank = 4 points, 3rd rank = 3 points, 4th rank = 2 points, 5th rank = 1 point.)

Rank	Games	Total Score
1	Basketball	627
2	Volleyball	595
3	Softball	508
4	Touch Football	493
5	Tennis	298
6	Paddle Tennis	46
7	Water Polo	39
8	Soccer	34
9	Speedball	21
10	Handball	17

C. Rating Questionnaire

Physical Education Purpose Evaluation³

1. Below are listed some possible values students want to get out of their physical education experiences in class.

2. To what extent do you agree or disagree that these are personal values which you would like to achieve as a member of a physical education class? Make *one* check in appropriate column. Please check every item in some one column.

3. Do not sign your name.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. to keep me in good health and physical condition					
2. to learn the best plans of attack and defense in games, to understand the strategy					
3. to develop strong muscles					
17. Add other purposes you think important					

D. Weighting Questionnaire⁴

Please indicate approximately what percent of a student's semester mark is dependent upon the following considerations:

³ Cornell, C. C., et al., "Purposes in Physical Education as Evaluated by Participants, Physical Education Supervisors, and Educational Administrators." *Research Quarterly*, October 1951, p. 297. (Illustration of some items of rating scale.)

⁴ Halladay, D. W., "Marking in College Physical Education Activities." *Research Quarterly*, October 1948, p. 183-184. (One item in questionnaire.)

1. attitudes (enthusiasm or cooperative spirit)	_____%
2. attendance	_____%
3. costume	_____%
4. daily work	_____%
5. effort	_____%
6. healthmanship	_____%
7. improvement	_____%
8. oral examination	_____%
9. performance examination	_____%
10. skill or proficiency	_____%
11. written examination	_____%
12. other	_____%

	100 %

E. Yes-No Response Questionnaire

Please check the following statements as they apply to your marking system.⁵

1. In the matter of skill is the individual marked on the basis of his standing with reference to the average of the class? Yes () No ().
2. Is the individual marked on the basis of his standing with reference to an established skill or record? Yes () No ().
3. Is the individual marked upon the basis of the degree to which he has approached his own maximum possibilities? Yes () No ().
4. Other considerations: _____

F. Statements of Description⁶

Suggestions

- A. In your opinion, in your school what are the three most serious impediments or obstacles to the development of a better school health service program?
 - 1.
 - 2.
 - 3.
- B. What do you think should be done to overcome these impediments?
 - 1.
 - 2.
 - 3.
- C. How would you recommend that this money for school health services be spent, if it becomes available?

II. Interview

Form I-d Interview⁷

School _____ Supt. () Sup. Prin. () Prin. ()

1. Is physical education one of the essential areas of instruction in your secondary school program? Yes () No ().
2. Should the State Education Department include physical education among the basic units required for graduation from high school? Yes () No ().

Comment: _____

⁵ *Ibid.*, p. 184. (One item in questionnaire.)

⁶ Smith, Sara Louise, *op. cit.* (One item in questionnaire.)

⁷ Moench, Francis J., "The Formulation of Standards for the Functional Planning of Physical Education Facilities for Secondary Schools." New York University, Ph.D. Thesis, 1949, p. 369. (Partial selection of items from interview form.)

3. What are the services of the Division of Health and Physical Education?
Visitations _____

Problem Solving _____

Materials _____

Suggestions for more adequate services _____

4. Are the local school needs for physical education being met adequately by present financial support from the state and local district? Yes () No ().
If "no," comment: _____

5. Is an organized plan of public relations which includes physical education in operation? press (), radio (), direct communication (), others _____

6. Do people in the community show interest, understanding and support for the program of physical education? Yes () No ().

Basis for opinion: attendance at physical education and athletic functions _____
others: _____

Recommendations: _____

7. Are the school and community resources coordinated in providing operational conditions for the school physical education program? Yes () No ()
Comment: _____

III. *Experimental Instrument*: Some of the instruments used in experimental problem solving in health, physical, and recreation education are:

A. Time Instruments: e.g., stop watch

B. Cardiovascular: e.g., stethoscope

C. Respiratory: e.g., gasometer

D. Reaction time: e.g., electrical starting blocks

E. Body Heat: e.g., thermometer

F. Blood Analysis: e.g., microscope

G. Work Standardizing Apparatus: e.g., treadmill

H. Body Structure: e.g., X-ray

I. Body proportions: e.g., tape measure

J. Force: e.g., dynamometer

K. Weight: e.g., scales

IV. *Observational Instrument*

A. Example One (Judging Individual Personality)⁸

B. Example Two (Judging School Practices)⁹

DIRECTIONS: WHAT WE WOULD LIKE YOU TO DO

You have undertaken to help discover the practices which will be used to describe the depth and character of education in Central Schools and their communities. The procedure you should follow in reporting your observations is outlined on page 328.

⁸ Partial example of a Springfield College personality record form used as a guide for the observation.

⁹ Reminders for Observers. Central School Boards Committee for Educational Research, 522 W. 120 St., New York, N.Y. (Partial example of guides developed for use in the study of Central Schools of New York State.)

Intelligence	Dull; very slow to grasp ideas	<input type="checkbox"/> Capable of grasping ideas, but apparently lacking in ability to analyze	<input type="checkbox"/> Has some ability of analysis; in general content to accept the conclusions of others	<input type="checkbox"/> Has a lively mind; habitually analyzes whatever data are presented; frequently forms conclusions independently	<input type="checkbox"/> Has a brilliant mind; critical in analysis and constructive imagination	<input type="checkbox"/> Don't know
Instances						
Industry	<input type="checkbox"/> Indifferent to work; apathetic	<input type="checkbox"/> Lazy; either incapable of making a prolonged effort or unwilling to do so	<input type="checkbox"/> Interested and fairly determined, though often discouraged by real difficulties	<input type="checkbox"/> Diligent; exhibits more than usual tenacity or purpose	<input type="checkbox"/> Assiduous in application; capable of "carrying on" under great difficulty	<input type="checkbox"/> Don't know
Instances						
Judgment	<input type="checkbox"/> Apparently has slight ability to form correct judgments	<input type="checkbox"/> Judgments frequently wrong	<input type="checkbox"/> Gives evidence of average common sense	<input type="checkbox"/> Sizes up situations not only correctly but fairly quickly	<input type="checkbox"/> Combines exceptional penetration with tact	<input type="checkbox"/> Don't know
Instances						
Integrity	<input type="checkbox"/> Known to have acted so as to arouse the suspicion of unreliability	<input type="checkbox"/> Careless about little things; easily influenced	<input type="checkbox"/> Keeps word when given; meets obligations	<input type="checkbox"/> Conscientious, notably scrupulous in personal conduct, thoroughly honest with self and others	<input type="checkbox"/> Loyal to high ideals; possessed of moral courage to stand up for principles	<input type="checkbox"/> Don't know
Instances						

FIGURE 24. A Personality Record Form.

1. Compare the practices you observe in the school that you are visiting with the Patterns in REMINDERS FOR OBSERVERS. For your convenience the Patterns have been listed again in this Visitor's Manual.

2. Mark the appropriate space under the Pattern in this Manual in *only one* of the following ways:

√√√ If you judge that the Pattern plays a major role throughout the area you are observing (e.g., Grades Kg-3, 4-6, 7-9, or 10-12).

√√ If you judge that the Pattern plays a major role in at least one grade or class.

√ If you judge that the Pattern shows up here and there but does not play a major role anywhere.

0 If you judge that the Pattern is never present.

3. For every Pattern that you double-check (√√), write on the facing blank page a brief description of the outstanding practice or practices that you have observed. For each description indicate the appropriate Pattern number and the grade, subject, situation, or organization. If you wish to report a practice which is almost identical to an example in REMINDERS FOR OBSERVERS, you may save time by copying only the letter which identifies the example in REMINDERS.

4. CAUTION: *Throughout your report any single practice should be used only once.*

5. The same four symbols explained in paragraph 2, above, are used for all three parts: School Program, Administration, and Community. The blanks provided for notations under the Patterns are different for each of the three parts, as illustrated in the examples on pages vi-ix.

6. If you need more space on which to describe outstanding practices, use the blank pages at the end of the booklet. PLEASE BE SURE TO IDENTIFY ALL YOUR DESCRIPTIONS WITH THEIR PATTERN NUMBERS as well as the grade or situation in which you observed the practice.

7. If at the close of the day you would like to record an over-all impression of your experiences, please turn to p. 61 of this Manual and list what seem to you to be the outstanding characteristics of the school or community.

8. If you find practices which do not seem to you to fit under any of the 98 Patterns, please describe them in the space provided on pp. 61-62.

9. Plan to spend as much time as may be necessary after school to discuss your experiences with the other members of your team, to complete your own report, and to assist your captain in preparing the Summary Report for the entire school (see REMINDERS FOR OBSERVERS, Appendix A).

EXAMPLE FOR FIELD WORKERS

Suppose, for example, that you have observed a fifth grade at work and have talked with the teachers and some of the children. Assume that you have judged that UNDERSTANDING AND RECOGNITION OF GENUINE PUPIL INTERESTS plays a major role in the activities for developing pupil competence in reading, writing, arithmetic, and speech.

Under Pattern 1, put a double-check (√√) in the blank marked for Grades 4-6.

On the facing blank page write brief descriptions of the practices you have observed and identify them with Pattern 1, Grade 5.

The next four pages illustrate the reporting procedure you would use.

EXAMPLE FOR FIELD WORKERS

I. SCHOOL PROGRAM

Section A. TEACHING THE BASIC SKILLS

Pattern—1. Activities for developing pupil competence in basic skills founded on UNDERSTANDING AND RECOGNITION OF GENUINE PUPIL INTERESTS

	✓✓		
Kg-3	4-6	7-9	10-12

The following line shows how the observers responsible for Part I, SCHOOL PROGRAM, would report their experiences in the school if Pattern 1

- (1) played a major role in the work in Grades 4-6,
- (2) was sometimes present in kindergarten and Grades 1-3,
- (3) did not appear at all in Grades 7-12:

✓	✓✓✓	0	0
Kg-3	4-6	7-9	10-12

EXAMPLE FOR FIELD WORKERS

DESCRIPTIONS OF PRACTICES OBSERVED

(Identify practices with Pattern number and grade or situation)

Pattern 1. Children care for pets and write stories for the school paper about Grade 5. these experiences.

Students have written and mailed letters to firms requesting pamphlets about topics in which they are interested.

V. Appraisal Techniques

A. Indirect Appraisal (application of instrument to a situation which has been observed).¹⁰

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. If for any reason a few subjects have to be dropped from the school program physical education should be one of the subjects dropped.					
2. Associations in physical education activities give people a better understanding of each other.					
3. Physical education activities provide no opportunities for learning to control the emotions.					

¹⁰ Wehr, Carlos L., "The Evaluation of Attitudes Toward Physical Education as an Activity Course." *Research Quarterly*, March 1951, p. 124.

B. *Direct Appraisal* (application of instrument to a situation immediately observed; e.g., judging diving)

*Example One: Inspectional Classification of Somatotype*¹¹

*Example Two: Judging Posture*¹²

VI. *Documentary Technique.* The documentary technique includes all written or printed materials that yield evidence that may be used for the solution of

Date
Examiner
Final Type No.
Type Name

SUBJECTIVE CLASSIFICATION OF BODY TYPE

Data on Subject:

Name: (last) (first) (initial)

Ht./ $\sqrt[3]{\text{Wt.}}$ Class Local Address
= Sex Race Weight
Age Height Nationality

Quick Inspectional Classification:

Endomorphy (first component): 1 2 3 4 5 6 7 Estimated Type Number:
Mesomorphy (second component): 1 2 3 4 5 6 7 Type Name:
Ectomorphy (third component): 1 2 3 4 5 6 7

Segmental Analysis by Careful Matching with Check Lists *

Region of Body	Endomorphy	Mesomorphy	Ectomorphy
1. Head, Face, and Neck.	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Notations:			
2. Thoracic Trunk.	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Notations:			
3. Arms, Hands, Shoulders.	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Notations:			
4. Abdominal Trunk.	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Notations:			
5. Legs and Feet	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Notations:			

* Each component (Endomorphy, Mesomorphy, and Ectomorphy) is rated separately on the seven-point scales by encircling the appropriate numbers.

FIGURE 25. A Form for the Classification of Body Type.

¹¹ Sheldon, W. H., Stevens, S. S., and Tucker, W. B., *The Varieties of Human Physique*. New York: Harper and Bros., 1946.

¹² Ostrow, Saul, "The Determination of Standards of Organic Development for Use in the Boys' Physical Education Program in New York State Public Secondary Schools." New York University, Ph.D. Thesis, 1951.




Name _____ Age: _____ yrs. _____ mos.		School _____	
Date _____ Height: _____ inches. Weight: _____ lbs.		Grade _____	
POSTURE SCORE CARD			
Lateral Posture (Viewed from the Rear)			
	Head erect gravity line passes directly through center. Check here _____	Head tilted or turned to one side slightly. Check here _____	Head tilted or turned to one side markedly. Check here _____
	Shoulders level horizontally. Check here _____	One shoulder slightly higher than the other. Check here _____	One shoulder markedly higher than the other (1). Check here _____
	Spine straight. Check here _____	Spine slightly curved laterally. Check here _____	Spine markedly curved laterally (2). Check here _____
	Toes pointed straight ahead. Check here _____	Toes pointed out slightly (1) or in slightly (2). Check here _____	Toes pointed markedly out or in. Check here _____
		Arches high. Check here _____	Arches lower, feet slightly flat. Check here _____

FIGURE 26. A Form for Judging Posture.

a problem. Examples of such evidence for the solution of problems in health, physical, and recreation education are:

- A. *Legal Records*: e.g., federal, state, and county.
- B. *Regulations*: e.g., statements directing operations of social agencies.
- C. *Political Documents*: e.g., party regulations and statements.
- D. *Religious Documents*: e.g., religious creeds and regulations.
- E. *Administrative Records*: e.g., records of private and public agency operations.
- F. *Report Forms*: e.g., attendance, health, measurement, evaluation.
- G. *Syllabi*: e.g., federal, state, county, local.
- H. *Courses of Study*: e.g., institutional plans in courses—physiology, chemistry.
- I. *Books, Magazines*: e.g., any material which will meet criteria of reliability and validity.
- J. *Historical Records*: e.g., history of the American Association for Health, Physical Education and Recreation.
- K. *Correspondence*: e.g., correspondence leading to the establishment of state laws.

VII. Job Analysis Technique¹³

A JOB ANALYSIS SURVEY OF THE DUTIES OF PHYSICAL EDUCATION IN THE NEGRO SECONDARY SCHOOLS OF VIRGINIA, AND OTHER STATES

This form should require approximately fifteen minutes for you to complete.

Date _____ Respondent _____

Location _____ Respondent's Title _____

Institution _____

(Official Designation)

¹³ Neilson, Herman N. (Partial illustration of a check list on job analysis survey used in connection with his doctorate investigations.) The job analysis form may contain the same types of items as the questionnaire.

Present Enrollment in Your Institution: (Approximate):

Senior High School boys _____ Senior High School girls _____

Total _____

Do you desire a summary of the findings of this study?

A self-addressed envelope is enclosed for use in returning this form at your earliest convenience.

When completed please mail this form to HERMAN N. NEILSON, DEPARTMENT OF PHYSICAL EDUCATION, HAMPTON INSTITUTE, HAMPTON, VA.

PART I

Physical education activities you are required to teach

Directions:

Listed below are physical education activities which are included in the activity program of many secondary schools. Please place a checkmark (✓) in bracket opposite the activities that you are required to teach in your activity PROGRAM. Write in the spaces provided any additional activities taught, but not included in this list.

- | | | | |
|----------------------------|-----|--------------------------------|-----|
| 1. Apparatus (heavy) | () | 11. Stunts | () |
| 2. Calisthenics | () | 12. Track & Field sports | () |
| 3. Badminton | () | 13. Touch Football | () |
| 4. Baseball | () | 14. Tumbling | () |
| 5. Boxing | () | 15. Soccer Football | () |
| 6. Dancing | () | 16. Softball | () |
| 7. Handball | () | 17. Swimming | () |
| 8. Football | () | 18. Volleyball | () |
| 9. Golf | () | 19. Wrestling | () |
| 10. Basketball | () | OTHERS: | () |
| | | | () |
| | | | () |
| | | | () |

VIII. *Test Instrument.* The test instrument may be standardized or teacher-made. In both instances it must meet the criteria of reliability, objectivity, and validity in order to be useful in problem solving. Valid norms and acceptable administrative procedures are also recorded. The nature, types, and uses of the test instrument are illustrated as follows:

NATURE

A. Product or Individual Outcomes

1. Developmental outcomes

- General: e.g., height, weight
- Medical: e.g., blood pressure
- Organic: e.g., physical fitness test
- Skills: e.g., soccer test
- Knowledge: e.g., health knowledge test
- Individual and group adjustment; e.g., sociometric test

2. Leadership Outcomes (student)

- Advisory: e.g., standards for student aids
- Administrative: e.g., administrative standards
- Supervisory: e.g., supervisory standards
- Instructor: e.g., leadership qualifications
- Technical Services: e.g., professional standards

3. Adjustment Outcomes
 - a. School: e.g., grades in subjects
 - b. Community: e.g., Bell Adjustment Inventory
 - c. Home: e.g., Bell Adjustment Inventory
- B. Process on the Conduct of Educational Programs
 1. Facilities: e.g., professional standards
 2. Activities: e.g., standards for a balanced program
 3. Administration: e.g., administrative standards
 4. Leadership (Professional) e.g., leadership standards
 5. Time and Participation: e.g., program time standards

TYPES

- | | |
|---|---|
| <ol style="list-style-type: none"> A. Status: current situations B. Achievement: accomplishments C. Educability: rate of development or learning D. Capacity: limits of development or learning | <ol style="list-style-type: none"> 1. <i>Product</i>: development, leadership and adjustment. 2. <i>Process</i>: facilities, activities, administration, leadership, and time and participation |
|---|---|

USES

- A. Classification: e.g., Cozens' Test of General Motor Ability
 - B. Diagnosis: e.g., Cozens, et al. Achievement Scales
 - C. Prognosis: e.g., McCloy Test of Motor Capacity
 - D. Motivation: e.g., all tests
 - E. Guidance: e.g., all tests
 - F. Grading: e.g., all tests
 - G. Program Evaluation and Planning: e.g., all tests
 - H. Research: e.g., tests designed for research purposes.
- IX. *Photographic Technique*. The photographic technique is used when movements that cannot be recorded by eye are desired for record so that analysis may be made. The instrument is the camera. Special skill is needed in order to record all movements. Some applications are:
- A. Track events: e.g., pole vault
 - B. Football: e.g., success of a play
 - C. Basketball: e.g., movements of players in a play sequence
 - D. Other sport activities
 - E. Play skills and group activity of children on a playground
 - F. Methods of teaching: e.g., records of group activity.
- X. *Sociometric Technique*

The Social Atom and the Socio-Atomgram

The social atom of an individual is his social response pattern at a specific moment of time for participation with others in a specific function. This social response pattern contains incoming units of attraction and rejection expressed by members of a group for a specific individual in the group and the feelings of attraction and rejection of that individual for other members of the group. The sociometric test is the instrument used to obtain these responses. A sample of a sociometric test appears on page 334. This is one of the sociometric tests used in a recent study of the social atoms of highly gifted children.¹⁴

¹⁴ Kerstetter, Leona M., "A Sociometric Study of the Classroom Roles of a Group of Highly Gifted Children." New York University, Ph.D. Thesis, 1952.

RED LINES = ATTRACTION

BLACK LINES = REJECTION

□ = NUCLEUS FOR BOY

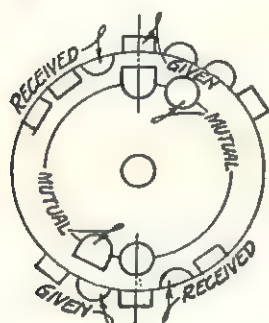
○ = NUCLEUS FOR GIRL

□ = BOY TO BOY
 ○ = GIRL TO GIRL
 □ = BOY TO GIRL
 ○ = GIRL TO BOY

MUTUAL RESPONSES
(PLACED CLOCKWISE
ON INNER RING)

RESPONSES GIVEN
 RESPONSES RECEIVED

UNRECIPROCATED
RESPONSES (PLACED
AS INDICATED ON
OUTER RING).



ATTRACTIONS (RED) START
AT TOP OF RINGS.

REJECTIONS (BLACK) START
AT BOTTOM OF RINGS.



NUCLEI JOINED AND RANK (BOY'S
FIRST CHOICE AND GIRL'S FOURTH).

FIGURE 27. An Example of a Socio-Atomgram.

The social atom may be constructed as shown in the set of directions on page 334. Each response in this pattern is considered either a unit of attraction (positive) or a unit of rejection (negative). The responses on the outer circle are unreciprocated and those on the inner circle are reciprocated. There are six different sets of responses: (1) incoming unreciprocated positive, (2) incoming unreciprocated negative, (3) outgoing unreciprocated positive, (4) outgoing unreciprocated negative, (5) positive reciprocal, (6) negative reciprocal.

The social atom may be scored according to the following scale of values:

Positive reciprocal	10
Positive unreciprocated	5
Balanced positive and negative	0
Negative unreciprocated	-5
Negative reciprocal	-10

The social atom status score may be obtained by the use of the following formula:

$$x_1 - x_2 + x_3 - x_4 + x_5 - x_6 = As$$

The sub numbers in the formula refer to the different sets of responses as listed above. This score indicates the prestige of the individual in the group in regard to participation in a specific function as indicated by his pattern of social responses.

The social setting of an individual must be studied from many aspects. While the social atom status score proves certain information regarding the immediate social responses of the individual, it is important to know the relationship of this social atom to the social atoms of other members of the group. A configuration of the social atoms of a group is obtained by linking atoms together on the basis of reciprocal relationships. This social atom configuration is called the socio-atomgram.

A quantitative score indicating the extent to which the individual can function in the group on the basis of his reciprocal relationships has been developed. It is called the social potency score. The formula is as follows:

$$x_5 - x_6 = Pt$$

The graphic presentation of the social atom and the socio-atomgram are techniques for the structural analysis of sociometric data. The "As" and "Pt" scores provide the technique for the quantitative analysis of the same data. Additional new structural and quantitative techniques for the analysis of sociometric data may be found by referring to the study on gifted children which was previously mentioned.

XI. Case Study Technique. The case study is applied in gaining data for problem solving when depth of information is desired about an unique educational program, champion athlete, or any problem when all factors related to it are analyzed according to the one situation. Some examples are:

- A. Medical examination
- B. Diet and exercise in relation to individual weight
- C. Physical fitness program and individual development
- D. Individual adjustment to a group
- E. The influence of the group on an individual,



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Form No. 3.

PSY, RES.L-1

**Bureau of Educational & Psychological
Research Library.**

The book is to be returned within
the date stamped last.

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Form No. 4

BOOK CARD

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